TO AMEND THE ENDANGERED SPECIES ACT OF 1973

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT

OF THE

COMMITTEE ON COMMERCE

UNITED STATES SENATE

NINETY-FOURTH CONGRESS

SECOND SESSION

ON

S. 2334

TO AMEND SECTION 15(B) OF THE ENDANGERED SPECIES ACT OF 1973 TO EXTEND THE APPROPRIATION AUTHORIZATION

S. 3122

TO AMEND THE ENDANGERED SPECIES ACT OF 1973 TO EXTEND AUTHORIZATIONS FOR APPROPRIATIONS

H.R. 8092

TO EXTEND THE AUTHORIZATION FOR APPROPRIATIONS TO CARRY OUT THE ENDANGERED SPECIES ACT OF 1973

MAY 6, 1976

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TO AMEND THE ENDANGERED SPECIES ACT OF 1973

THURSDAY, MAY 6, 1976

U.S. SENATE,
COMMITTEE ON COMMERCE,
SUBCOMMITTEE ON ENVIRONMENT,
Washington, D.C.

The subcommittee met at 10:05 a.m., in room 5110, Dirksen Senate Office Building, Hon. Wendell Ford presiding.

OPENING STATEMENT BY SENATOR FORD

Senator FORD. If I could have your attention, I will make my opening statement, and then we will proceed with the witnesses. We want to get started without delay, because there are a good many people that would like to be heard this morning, and we hope to hear everyone before the hour of 1 o'clock.

As most of you probably know, today the Subcommittee on Environment is holding a hearing on the Endangered Species Act of 1973. The act strengthens its 1966 and 1969 predecessors to give the Secretary of the Interior and the Secretary of Commerce major new authority to protect species of plants and animals which are on the brink of extinction. Using the best scientific and commercial information available to him, the Secretary of the Interior, after consultation with the States—and, when a marine mammal is involved, with the Secretary of Commerce—has the authority to determine when a species is either endangered—in imminent danger of extinction—or threatened—likely to be in danger of extinction in the near future—and to promulgate regulations for its protection.

Once a species has been designated as endangered, the act makes it illegal to kill, import, export, or otherwise trade in, that species or its parts and products, except pursuant to a permit issued by the Secretary. The act also provides the Secretary with the authority to designate habitat which is critical to the survival of listed species. Once it has been so designated, no Federal agency may undertake any project which will destroy or otherwise threaten this habitat.

Other provisions authorize the Secretary to provide the financial and technical assistance to the States and to foreign nations for the implementation of endangered species programs.

The Department of Interior is currently authorized to spend $10 million per year, and the Department of Commerce $2 million per year, for administration of the act. This authorization, however, expires on June 30. Thus, the primary purpose of this morning's hearing is to take testimony on three bills pending before the Commerce Committee, which will extend this authorization. These are S. 2334, introduced by Commerce Committee Chairman Warren G.

Staff member assigned to this hearing: Kathi Korpon.

Magnuson, which continues the current Commerce Department funding level through fiscal year 1978; S. 3122, introduced by Senator Frank E. Moss, which continues the current Interior Department funding level through fiscal year 1978; and H.R. 8092, passed by the House, which combines both authorizations, increases Interior's authorization to a total of $25 million for fiscal years 1977 and 1978, and increases the Commerce authorization to a total of $500,000 for the transitional period and $5 million for fiscal years 1977 and 1978.

In addition to taking testimony on these bills, we will also be conducting an oversight review of the progress made by the two Departments thus far in the administration of the act. Along with the new authority provided by the Endangered Species Act has come new responsibility. Since the act was effective upon its date of enactment, the Departments had essentially no lead time to gear up for these new responsibilities, and the implementation of the act has not occurred as rapidly as some would like.

On the other hand, it has been charged that the lack of progress can be attributed at least in part to red tape and the bureaucratic process whereby species are listed, and thus brought under the protection of the act. Today, we will be looking at how this process might be streamlined.

We will also be taking testimony on the need for exemptions to provisions of the act which prohibit trade in endangered species and their parts and products. The law currently prevents zoos, circuses, aquariums and others who breed endangered species in captivity from exchanging and selling their surplus stocks of animals, and may actually be hindering efforts to preserve these animals. The Interior Department is currently developing regulations to take care of this problem, and we will be asking them to report on progress they have made in this area.

And, you know, I might depart from my printed remarks at this moment. It seems that when we have an oversight hearing, all of a sudden regulations pop out of the Department, as they did last fall before the House Merchant Marine hearings and as they did yesterday. It reminds me of a GI inspection when I was in the Army.

A second group of proposed exemptions, which must be handled by legislation rather than administrative action, involves exemptions for the sale of legally acquired inventories of scrimshaw, which is carved whale ivory, and sperm whale oil. The exemption, if granted, would resolve an inconsistency between the Marine Mammal Protection Act of 1972—which permits trade in scrimshaw and sperm whale oil acquired before its enactments—and the Endangered Species Act, which contains no such grandfather clause.

Last year, the Senate passed S. 229, which provides exemptions for the interstate sale of scrimshaw. In February the House passed a similar bill which contains exemptions for scrimshaw and sperm whale oil. Since the Senate has not yet taken testimony on the sperm whale oil issue, we will do so today.

[The bill and agency comments follow:]

94TH CONGRESS
1ST SESSION

S. 2334

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 11, 1975

Mr. MAGNUSON (for himself and Mr. PEARSON) (by request) introduced the following bill; which was read twice and referred to the Committee on Commerce.

A BILL

To amend section 15(B) of the Endangered Species Act of 1973 to extend the appropriation authorization.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Endangered Species Act of 1973 (87 Stat. 884; 16 U.S.C. 1531 et seq.), is amended by striking in section 15(B) the words "fiscal year 1976," and inserting in lieu thereof the words "each of the fiscal years 1976 through 1978,".

II

94TH CONGRESS
2D SESSION

S. 3122

IN THE SENATE OF THE UNITED STATES

MARCH 10, 1976

Mr. Moss (by request) introduced the following bill; which was read twice and referred to the Committee on Commerce

A BILL

To amend the Endangered Species Act of 1973 to extend authorizations for appropriations.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 15(A) of the Endangered Species Act of 1973 (16 U.S.C. 1542(A)), is amended by deleting "fiscal year 1976" and inserting in lieu thereof, "fiscal years 1976, 1977, and 1978.".

II

94TH CONGRESS
2D SESSION

H. R. 8092

IN THE SENATE OF THE UNITED STATES

MARCH 16, 1976

Read twice and referred to the Committee on Commerce

AN ACT

To extend the authorization for appropriations to carry out the Endangered Species Act of 1973.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 15 of the Endangered Species Act of 1973 (16 U.S.C. 1542) is amended—

(1) by striking out "and not to exceed $10,000,000 for fiscal year 1976," in paragraph (A) thereof and inserting in lieu thereof ", not to exceed $10,000,000 for fiscal year 1976, and not to exceed the total of $25,000,000 for fiscal years 1977 and 1978,"; and

(2) by striking out "and not to exceed $2,000,000 for fiscal year 1976," in paragraph (B) thereof and

inserting in lieu thereof ", not to exceed $2,000,000 for fiscal year 1976, not to exceed $500,000 for the period beginning July 1, 1976, and ending September 30, 1976, and not to exceed the total of $5,000,000 for fiscal years 1977 and 1978.".

Passed the House of Representatives March 15, 1976.

Attest: EDMUND L. HENSHAW, JR.,

Clerk.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., March 18, 1976.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to the request of your Committee for the views of this Department on S. 2334, a bill "To amend section 15(B) of the Endangered Species Act of 1973 to extend the appropriation authorization." The Committee also has before it for consideration S. 3122, the Administration's bill, "To amend the Endangered Species Act of 1973 to extend authorization for appropriations," and H.R. 8092 as passed by the House, a bill "To extend the authorization for appropriations to carry out the Endangered Species Act of 1973."

We recommend the enactment of S. 3122 in lieu of H.R. 8092, and we defer to the Department of Commerce as to the advisability of enacting H.R. 2334.

S. 2334 would extend the authorization for appropriations for the Department of Commerce under section 15(B) of the Endangered Species Act. We defer to the Department of Commerce on the enactment of S. 2334.

S. 3122 would extend the authorization of $10 million for appropriations in FY 1977 and FY 1978 for the Department of Interior under section 15(A) of the Endangered Species Act. S. 3122 was introduced by request for the Administration and is, thus, identical to the Administration's proposal which was transmitted to the Congress on May 15, 1975. We recommend that S. 3122 be enacted.

H.R. 8092 as passed by the House would authorize the appropriations of $25 million for FY 1977 and FY 1978 for the Department of Interior under section 15(A) of the Endangered Species Act. We recommend the enactment of S. 3122 in lieu of H.R. 8092.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

CURTIS BOHLEN,
Acting Assistant Secretary of the Interior.

GENERAL COUNSEL OF THE
U.S. DEPARTMENT OF COMMERCE,
Washington, D.C., April 30, 1976.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request for the views of this Department concerning H.R. 8092, an act "To extend the authorization for appropriations to carry out the Endangered Species Act of 1973."

H.R. 8082 would amend the Endangered Species Act of 1973 by extending the authorization for appropriations to the Departments of Commerce and the Interior. The existing authorization for both Departments expires June 30, 1976.

The Department strongly supports enactment of legislation to extend the authorization of appropriations for the Department of Commerce under Sec. 15(B) of the Endangered Species Act of 1973. Passage is imperative to tie continuation of our program for the conservation of "endangered" and "threatened" species.

H.R. 8092, an Act, increases the appropriation authorization under Sec. 15(B) of the Endangered Species Act of 1973 for the Department of Commerce to $5 million for fiscal years 1977 and 1978. The Department has submitted to the Congress draft legislation authorizating extension of the authorization at the level of $2 million per year for fiscal years 1977 and 1978. This legislation has been introduced as S. 2334. We recommend that clause (2) of H.R. 8092 be amended to conform to the provisions of S. 2334. We would defer to the Department of the Interior as to clause (1) of H.R. 8092.

We have been adivsed by the Office of Management and Budget that there would be no objection to the submission of our report to the Congress from the standpoint of the Administration's program.

Sincerely,

JOHN T. SMITH,
GENERAL COUNSEL.

Senator FORD. Let us turn to our first witness now, Dr. Lee Talbot from the Council on Environmental Quality. Dr. Talbot is Assistant to the Chairman for International and Scientific Affairs. Dr. Talbot if you would come forward, we would be delighted to hear you this morning.

STATEMENT OF LEE M. TALBOT, ASSISTANT TO THE CHAIRMAN FOR INTERNATIONAL AND SCIENTIFIC AFFAIRS, COUNCIL ON ENVIRONMENTAL QUALITY; ACCOMPANIED BY GERARD A. BERTRAND

Dr. TALBOT. Thank you very much, Mr. Chairman. I am bringing with me Dr. Gerard Bertrand, my assistant at the Council on Environmental Quality. To save time this morning, sir, in view of the large number of witnesses that you have, I would like your permission to insert my remarks into the record, and I should like to some degree to highlight them.

Senator FORD. That is perfectly agreeable with the Chair, and your remarks will be included in the record. You may proceed with your comments.

Dr. TALBOT. Thank you, sir.

I would like to point out first that the Council on Environmental Quality has been very closely involved with the development of both the Endangered Species Act of 1973 and the international convention, the two items which I will direct my comments to this morning. These were both included in the President's 1972 and 1973 environment programs, which this Council has the responsibility to develop and compile, and we have played a continuing important role in their implementation since that time.

My personal involvement, as a personal note, goes back to 1961, when I convened a meeting in Tanganyika which produced the recommendations—the first, I believe—for the international convention. Hence, I admit to some personal interest in this.

The significance of the U.S. action on this convention is in part, from the fact that the United States prepared the draft convention. We convened the plenopotentiary conference for its consideration. We were the first nation to ratify the convention. We have thus provided the leadership in the development and conclusion of this convention. Much of the world looks to us now for leadership in its implementation.

I get many inquiries from developed and developing nations about our progress in the convention's implementation. This, to some degree, is embarrassing, in that the convention came into force on July 8 of last year, but we have really only just taken the first major step in its implementation; this through Executive Order 11911. In this order, the Department of Interior is designated as the lead agency, and the Federal representative for the convention in international negotiations and administration. This step is particularly important in view of our past leadership role.

I would like to emphasize that inactivity on our part in making this convention work could seriously weaken or delay international implementation of the convention, and international conservation efforts with endangered species in general. With this Executive order,

we join the 22 other nations that have already begun to make the convention a working arrangement. And, as an aside, there is even one nation—the United Kingdom—that has already implemented the convention, even though it has not yet formally ratified it.

The order establishes a scientific authority and a management authority, which are required by the convention. It is most important that we implement these without further delay. A second aspect of the convention I would like to address involves the potential problem caused by endangered plants. The convention makes it imperative that adequate expertise in the identification and protection of endangered plants be applied. This has not yet been done, yet 10 months have already passed since the convention came into force. We should have been regulating the flow of endangered plants and plant materials identified in the convention during this period.

Another issue regarding implementation of the convention, to which we wish to draw your attention, is the permit and licensing procedure. It is important that if the convention is to truly protect wildlife, this permitting procedure must be effective and efficient. This must be done if the Government is to live up to its national and international responsibilities under the act and the convention.

Another international responsibility under the Endangered Species Act involves the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. This, while ratified in the United States in 1941, has yet really to be acted upon by us or any of the other Western Hemisphere participants. However, the implementation of this along with the endangered species convention, is covered under section 8(e) of the Endangered Species Act of 1973.

The Department of the Interior, in cooperation with this Council, has recently begun to explore implementation of the convention. We have had a meeting of appropriate Federal agencies at CEQ last month to examine the Federal responsibilities, and the Department of the Interior is now contacting the Organization of American States, which is the repository for the convention, to explore the current activities under the convention.

Now, the need for habitat protection was a key focus of discussion in the negotiations for the Endangered Species Act of 1973. This was done in the act in section 7, in the part on critical habitat. Despite the apparent utility of this provision, and the critical role of habitat in endangered species, this section has been used only twice to protect endangered species' habitat since 1973. Additional critical habitat of a few other species have been proposed, but not yet made final.

The last topic I wish to address today concerns the application of the National Environmental Policy Act to the Endangered Species Act and the convention. The mandates of NEPA and the Endangered Species Act are compatible. Concern has been expressed, however, that full implementation of NEPA requires a delay in implementing the Endangered Species Act program.

Our Council has taken an essentially conservative view on exceptions to NEPA. If the issue is whether or not the effect of the action is significant under NEPA, we have usually advised that it is in the public's interest to have an impact statement prepared. On the other hand, where a program is implemented using identifiable class of actions, the Council has encouraged agencies to use generic

or program impact statements. This type of approach facilitates early and comprehensive policy development and program planning, and, we believe, can result in considerable cost and time savings.

We understand that the Department of the Interior has completed a preliminary study concerning the preparation of a program statement for the endangered species program. We feel that such a comprehensive analysis would be extremely useful in implementing the program. Generic or program approaches, when coupled with action by action treatment where necessary, may also assist in implementing substantial parts of the program.

For example, program approaches, as opposed to species by species impact statements, could be used if the list of endangered plants prepared by the Smithsonian Institution is adopted under section 4 of the act. We believe that this plant list is acceptable as authoritative, and reflects our Nation's best scientific judgments. Other actions, such as listing of the species identified in appendices 1 and 2 of the convention, can be handled in the same manner.

We have exchanged views with the Department of the Interior on these possible NEPA requirements in regard to the act and the convention. The Council stands ready to advise Interior and the Department of Commerce to reach a prompt solution regarding NEPA compliance.

A last point, Mr. Chairman. In addition to the significance of the United States as a world leader in the field of endangered species, and the role which our action or nonaction may have on the international efforts to preserve endangered species, there is also the fact that through the Convention and the appendices of it, we have provided a list which could become—and in some cases from our information has become—sort of a shopping list for those unscrupulous persons who wish to exploit these during the time before the Convention is fully implemented on a worldwide scale. We expressed concern about this in 1973, when the Convention was negotiated. The problem is more pressing now, and we believe that swift action is essential to make the convention fulfill its purposes.

Thank you again, Mr. Chairman, for the opportunity to appear before you, and Dr. Bertrand and I will be pleased to answer any questions.

Senator FORD. Thank you very much, Dr. Talbot.

You have testified on the requirements of the National Environmental Policy Act regarding endangered species. Has the Fish and Wildlife Service agreed to do a programmatic EIS on the endangered species program?

Dr. TALBOT. My understanding is that they agreed to a programmatic approach last fall. However, as far as I know, nothing has been done on this. I would defer, however, to Mr. Schreiner at the Department of the Interior for any progress on the statement. We have held a number of discussions with them about this subject.

Senator FORD. Is it the view of CEQ that a programmatic EIS will meet the requirements of NEPA?

Dr. TALBOT. Yes, sir. We believe that a statement for the program as a whole, along with possible program statements covering large, uniform classes of species as they are listed, would be adequate in most cases. And we have conveyed this to the Department of Interior in

these meetings, and it was my understanding as of last fall that they had agreed to prepare a program impact statement. We have not said that individual statements were required for the listing of each individual species. This clearly would present a very considerable obstacle to action, and in our view is certainly not required under the National Environmental Policy Act.

Senator FORD. As you know, the Endangered Species Act requires the Secretary to use the best scientific authority available to him in determining whether a species should be listed as threatened or endangered. What is your conception of the term, "best scientific authority?"

Dr. TALBOT. The best scientific authority or evidence, as it is specified in the act, in my opinion refers to normal scientific procedure to be followed in any such case. Let me give as an example the Smithsonian list. The Smithsonian assembled the best, the most authoritative scientific experts and data available in the country, compiled the information from them, reviewed it with them, and then submitted this to what amounts to a peer review of other scientists. The resultant data were presented to Congress in the report that the Smithsonian made pursuant to the act.

This procedure—that is, bringing together the scientists with the greatest expertise in the area, compiling the information, and then putting it up for scientific review—is the normal procedure and as I understand it, what was anticipated when the act was drafted. Now, I would like to emphasize that the quality of scientific data varies from one species to another. For some, we have virtually no data. For others, we have a large amount of data. Therefore, it is not possible to set up what amounts to bureaucratic requirements for a given amount of information in each case.

What one can get, however, is the best scientific evidence from the scientists who are most knowledgeable about it. Clearly, since we are concerned with endangerment, any error should be on the side—and scientists would emphasize that with the objective to prevent extinction of any species—any error should be on the side of a conservative approach rather than the reverse.

Senator FORD. Has Interior, in your opinion, pursued this policy that you have just enunciated?

Dr. TALBOT. Well, I have not had an opportunity to see very much of what Interior's procedure has been. In the case of the Smithsonian plant list, which was done by the Smithsonian Institution this policy was very well carried out.

Senator FORD. As it relates to the Smithsonian?

Dr. TALBOT. As it relates to plants that were referred to the Smithsonian by one of the sections of the Endangered Species Act of 1973, however, I am not very well acquainted with the specifics of the Department of Interior approach.

Senator FORD. Well, we will get to them a little later. When the Department contracts out to a university or other organization a status study on a particular species, do you think that finding contained in such report would be considered the best scientific authority?

Dr. TALBOT. That is a usual type of procedure to get at the best scientific authority where such authority does not exist within the agency itself. However, there must be assurance that the university

or other institution involved which has been contracted is appropriate for this subject.

Further, the submission of the results for what amounts to peer review among scientists tends to be the scientific fail-safe method to assure that this has, indeed, produced the best scientific information.

Senator FORD. Dr. Talbot, let me give you an example. I understand that the Service contracted out to the World Wildlife Fund its status study on the primates of the world. The Committee has been told that the study was forwarded to the Service in January 1975 recommending that certain species be listed as threatened.

Yet, not even a proposed rulemaking was issued until April 19 of this year, that is, 16 months. Now, does that seem like an inordinate delay to you and do you know of similar situations where this type of thing has happened?

Dr. TALBOT. My personal view is that is quite an inordinate delay. The World Wildlife Fund, works in cooperation with the International Union for Conservation of Nature and Natural Resources, which provides much of the scientific expertise for World Wildlife Fund. Through it World Wildlife has access to the world's top experts.

They have a network of such people. They have produced—the International Union has produced and continues to update the most authoritative documents on endangered species. These are called the Redbooks. Consequently, that type of data received from then on a contract basis or otherwise would certainly be considered to be scientifically valid and, were action wanted, it should provide the base for it.

Senator FORD. You have emphasized the total lack of protection for endangered plants. Would you briefly give me a reason for this and how you think it can be remedied?

Dr. TALBOT. Well, the problem is that to date no species have been listed as endangered or threatened under the 1973 act. There have been a couple of notices of consideration or proposals in the Federal Register but, without listing, there can be essentially no protection for most species of plants.

Habitat is the most important consideration in terms of protection. Under the existing law, if the species are listed and critical habitat is established for them, and even in some cases by my reading of the law, if it is not, section 7 can assure that action can be taken to protect these species.

Consequently, there are two things that are required. One is to publish regulations which, as far as I know, have not been done yet. And, second, to list under those regulations those plants which are threatened or endangered. A ready-made list of these plants provided by the Smithsonian, plus those that are on the appendix of the International Convention already exists for further action.

Now, the Smithsonian report noted in its recommendations that, at the time of the report, they did not believe that new legislation was required, but they recommended review to see if the act was adequate without any changes.

They further pointed out three basic problems with the act as it stands in terms of plants. The first is that it list species and subspecies, but not varieties. Second, far more important, it does not allow for land acquisition to protect the habitats of plants. And, third, it does not have any prohibition on the taking of plants as such in terms of domestic plants as opposed to international ones.

Consequently, in my view, there is action which can be taken and we believe should be taken immediately to establish the regulations and list the plants. There should be a very careful analysis of the act as it stands to see if there should be an amendment to provide this kind of coverage for plants highlighted by the Smithsonian report.

Senator FORD. Do you have the language for that amendment that you think would be proper to offer at this time?

Dr. TALBOT. No, we do not, sir.

Senator FORD. I have one final question. I believe you are aware of the reorganization of the Endangered Species Office that is now underway. In your view, how would this reorganization affect the efficient functioning of the Office and do you have any general comments to make on this reorganization?

Dr. TALBOT. Well, I would not be in a position to comment specifically on the reorganization as such. I would make a couple of general comments.

One is that, as I tried to indicate earlier, the role of science is absolutely critical to the effective operation of this program. Therefore, there should be the closest relationship possible between scientists and action.

Therefore, there should be an adequate scientific staff or access to the Nation's scientific capabilities.

And, second—and this indicates my own predilection for action as opposed to bureaucracy—I feel that the fewer desks across which papers have to pass between the scientific information and the action in the field the better. Consequently, whatever type of organization most accelerates the action rather than most aggravates the flow of paper is, in my view, the way an organization ought to be.

Senator FORD. Dr. Talbot, we thank you for being here this morning. We will send you some questions to be answered in writing for the record.

Thank you for your assistance.

Dr. TALBOT. Thank you very much, sir.

[The statement follows:]

STATEMENT OF LEE M. TALBOT, ASSISTANT TO THE CHAIRMAN FOR INTERNATIONAL AND SCIENTIFIC AFFAIRS, COUNCIL ON ENVIRONMENTAL QUALITY

Thank you Mr. Chairman. I appreciate the opportunity to appear before you today to discuss the implementation of the Endangered Species Act of 1973, the Convention on Trade in Certain Species of Wild Animals and Plants, signed in 1973, implemented by the Act, and Executive Order No. 11911 signed on April 13 1976, by the President.

The Council on Environmental Quality has been closely involved with the development of both the Endangered Species Act of 1973 and with the international convention. The Act and the convention were included in the President's 1972 and 1973 Environmental Programs, which this Council had the responsibility to develop and compile. Representatives of the Council have testified in support of the endangered species legislation. Mr. Russell Train, while Chairman of the Council on Environmental Quality, headed the U.S. Delegation to the Plenipotentiary Conference which negotiated the International Convention. In addition, the Council's responsibilities under the National Environmental Policy Act, and particularly Section 102(2)(C) have direct relevance to both the act and the convention.

My personal involvement with the Endangered Species Convention dates back to 1961 when I convened a meeting of the International Union for Conservation of Nature and Natural Resources in Arusha, Tanganyika, which recommended that such a convention be developed, since it provided the only means to control the trade which even then threatened many species.

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Spearheaded by Congressional interest from this subcommittee, the United States prepared a draft convention and convened the plenipotentiary conference for its consideration in 1973. We were the first nation to ratify the convention. We provided the leadership in the development and conclusion of the convention, and much of the world looks to us now for leadership in its implementation.

The International Union for Conservation of Nature and Natural Resources (IUCN) serves as the Secretariet for implementation of the convention. At the triennial General Assembly of the IUCN, held in Zaire in September, I was asked by representatives of both developed and developing countries about our progress in the convention's implementation. The convention came into force on July 8 of last year, and we have just taken an important step toward its implementation in Executive Order 11911. In this Order, the U.S. Department of the Interior is designated as the lead agency and federal representative for the convention in international negotiations and administration. This step is important in view of our past leadership role. Inactivity on our part in making the convention work would seriously weaken or delay the international implementation of the convention. With the Executive Order, we join the 22 other nations that have already begun to make the convention a working arrangement. There is even one nation, the United Kingdom, that has already implemented the convention although it has not yet formally ratified.

The scientific authority under the convention advises and recommends actions in regard to the convention, and the management authority has charge of the operational and enforcement aspects of the convention.

A second aspect of the convention to which I would like to direct the attention of this Subcommittee is the potential problem posed by endangered species of plants and plant materials. The convention makes it imperative that adequate expertise in the identification and protection of endangered plants be applied. This has not yet been done, yet ten months have already passed since the Convention came into force and we should have been regulating the flow of endangered plants and plant materials identified in the convention across our international boundaries during this period.

Another issue regarding the implementation of the convention we wish to draw to your attention is the permit and licensing procedure to be adopted and enforced by the management authority. It is important that if the convention is truly to protect wildlife, the permitting procedure and its enforcement must be effective. During negotiation of the convention, a primary fear expressed by representatives of both the developed and developing nations alike was that the permit procedures we had proposed might not prove practical and workable. It was the position of the U.S. Government at that time that these procedures were workable, and that we had in existence adequate mechanisms to implement them under the convention. In fact, we even offered to share this management ability with other nations seeking to develop their own.

Much concern from the conservation community has been voiced to the Council that existing procedure under the Endangered Species Act, without the burden of the convention, is in itself too slow to be effective. With the needs of the convention, as well as the obvious need for control of live animal imports under the Lacey Act, the licensing and permitting procedures must be made effective and efficient. This must be done if the government is to live up to its national and international responsibilities under the act and the convention.

Another international responsibility under the Endangered Species Act involves the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. This convention, ratified by the United States in 1941, has potentially broad environmental significance. Implementation of this convention, along with the Endangered Species Convention, is covered by Section 8(e) of the endangered Species Act of 1973. The Department of the Interior in cooperation with the Council on Environmental Quality has recently begun to explore implementation of this convention. A meeting of appropriate federal agencies was held at CEQ on April 15 of this year to examine federal responsibilities under the convention. The Department of the Interior subsequently contacted the Organization of American States, the repository for the convention, to explore the current activities under the convention.

The need for habitat protection recognized in the Western Hemisphere Convention was also a key focus of discussion in 1972–73 prior to the Passage of the Act. This was done in the Act in Section 7 on Critical Habitat. Despite the apparent utility of this provision, it has been used only twice to protect endangered species habitat since 1973, once on an emergency basis for the Mississippi Sand-

hill crane and once as a final rulemaking for the Snail Darter habitat on the Tennessee River. Additional critical habitat of a few other species has been proposed but has not yet been made final. The Office of Endangered Species only last week sent out a first set of guidelines to states and agencies regarding this section, so some progress is being made.

The last topic that I wish to address today concerns the application of NEPA to the Endangered Species Act and the convention. The mandates of NEPA and ESA are compatible. Concern has been expressed, however, that full implementation of NEPA requires a delay in implementing the ESA program.

The Council on Environmental Quality has taken an essentially conservative view on exceptions to NEPA. If the issue is whether or not the effect of the action is "significant" (under NEPA), the Council has usually advised that it is in the public's interest to have an impact statement prepared. On the other hand, where a program is implemented using identifiable classes of actions, the Council has encouraged agencies to use generic or program environmental impact statements. This type of approach facilitates early and comprehensive policy development and program planning and can result in substantial cost savings.

We understand that the Department of the Interior has completed a preliminary study concerning the preparation of a program statement for the general endangered species program. Such a comprehensive analysis would be extremely useful in implementing this program.

Generic or program approaches, when coupled with action-by-action treatment where appropriate, may also assist in implementing substantial parts of the general program. For example, program approaches could be used if the list of endangered plants prepared by the Smithsonian Institution at the direction of Congress is adopted under Section 4 of the Act. We believe that this endangered plant list is acceptable as authoritative and reflects our nation's best scientific judgments. Other actions such as the listing of those species identified in Appendices 1 and 2 of the Convention can be handled in the same manner.

The Council on Environmental Quality and the Interior Department have exchanged views on these possible NEPA requirements in regard to the Act and convention. The Council stands ready to advise Interior and the Department of Commerce to reach a prompt solution regarding NEPA compliance.

In negotiating the 1973 convention the U.S. Government represented and believed that the need to protect wildlife through this convention was imperative. But the species listed in the appendices became a "shopping list" for those unscrupulous persons who wished to exploit these species during the time before the convention was fully implemented on a worldwide scale. This problem is more pressing now, and we believe that swift action is essential to make the Convention fulfill its purposes.

Thank you again, Mr. Chairman, for this opportunity to appear before you. I will be happy to answer any question that you may have on this subject.

STATEMENT OF GEORGE W. MILIAS, DEPUTY DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR; ACCOMPANIED BY RICHARD PARSONS, DIVISION OF LAW ENFORCEMENT; KEITH SCHREINER, ASSOCIATE DIRECTOR FOR FEDERAL ASSISTANCE; AND BRUCE McBRIDE, OFFICE OF ENDANGERED SPECIES

Mr. MILIAS. I appreciate this opportunity to appear here today to discuss the endangered species program.

With, I think, your almost certain permission, I have a longer statement for which I will substitute a shorter one and file the longer statement with the committee.

Senator FORD. That is one thing you can be assured of. Your lengthy statement will be taken. We appreciate receiving your abbreviated statement.

Mr. MILIAS. Thank you, sir.

Mr. Chairman, we urge that S. 3122 be enacted promptly. The Department of Interior's endangered species program will be unable to continue functioning after September 30, 1976, without such an authorization.

This bill would authorize appropriations of $10 million annually for 2 years, fiscal years 1977 and 1978. To date appropriations to the Department of Interior's Fish and Wildlife Service, under section 15(A) of the Endangered Species Act have been $4.6 million in fiscal 1974, $5.6 million in fiscal 1975, $7.3 million in fiscal 1976, and $1.8 million have been authorized for the transition period.

In addition, $2 million in grant-in-aid funds were appropriated for fiscal 1976 and for fiscal 1977. The administration is requesting $8.6 million for the program. An authorization of $20 million over the next 2 years will permit actions to be taken to protect those species which are the most important to the American people and which are, in our opinion, in the most critical situation.

The Endangered Species Act is so comprehensive in its scope and impact that it would be virtually impossible, even with very high levels of funding and staffing to accomplish all the work that is mandated by the act.

Some 170 man-years of effort are presently available to the Fish and Wildlife Service to carry out this program. Other than the grant-in-aid and land acquisition, we can only hope that this level of staffing will increase over the next few years. We have had to establish priorities for handling the requirements of the act. The Service has been and will continue to concentrate its efforts on native species before foreign species and particularly on native species that will benefit from being listed first.

We are currently concentrating on consummating cooperative agreements with the States and only with their full cooperation can the job be done. Within the requested funding levels we will continue to screen candidate species and conduct status surveys to determine which species should be listed.

There are presently 439 species of animals listed as either endangered or threatened; 428 endangered and 11 threatened and we plan to refuse some 3,500 over the next 3 years and list those species needing protection.

We presently have a proposal to determine some 1,700 native plants as either endangered or threatened. We are pushing ahead on regulations facilitating legitimate commerce in captive self-sustaining populations of endangered species, regulations amplifying those published in the Federal Register, September 26 of last month, were published as proposed rulemaking yesterday (May 5, 1976).

The regulations would propose the establishment of several captive self-sustaining populations as well as outline specific requirements for those people wishing to engage in such commerce and an example of that would be exotic pheasant type, some of the cat family which are well propagated at the present time in zoo and zoo-type atmosphere.

The 50 endangered species recovery teams, composed of Federal, State, and private experts, are well on their way to developing plants and programs for the recovery of 62 species. The recovery team program offers an opportunity for all levels of government and a

private sector to work together in a coordinated manner with a common goal and to apply all of their resources where they will do the greatest good.

We are continuing to take steps to insure that all other Interior agencies and other Federal agencies are aware of the endangered species, under section 7 of the act, that sections directs that all Federal agencies take precautions to insure that actions authorized, funded, or carried out by them, do not jeopardize the continued existence of endangered or threatened species.

Procedures have been agreed to involving the consultation process required by section 7 and guidelines have been distributed to all agencies impacted by section 7. Critical habitat listing has proceeded, notice of intent to review the critical habitats of 108 endangered species in the United States was published December 16, 1975; 7 of the species were selected as highest priority.

These are the Indiana bat, the Mississippi sandhill crane, American crocodile, whooping crane, Florida manatee, snail darter, and California condor.

We have published in the Federal Register proposals to determine critical habitat for six of these species and the critical habitat of the seventh, the snail darter, has also been listed.

The executive order to designate the scientific and management authorities under the Convention on International Trade and Endangered Species of Wild Fauna or Flora was signed by the President April 13, 1976.

Soon we will publish proposed regulations which would establish procedures for issuing permits to import or export threatened and endangered plants. These regulations plus those already in effect for animals will enable us to meet the responsibilities assigned to us and to the Convention and to integrate these responsibilities with the requirements of the Endangered Species Act.

The Endangered Species Act contains an authorization for appropriations in section 6(i) as well as section 15(A) which is under consideration today. Section 6(i) provides for grant-in-aid funds to States expires June 30, 1977. Since the authorization in section 6(i) expires a year later than the authorization in 15(a) it was not included in the administration's proposal included to Congress May 16, 1975.

I have addressed in greater detail in the other statement some of the substantive amendments to the Endangered Species Act contained in S. 229. We urge these comments be considered and further action on that bill be taken.

Mr. Chairman, Mr. Schreiner, Mr. Parsons and Mr. McBride are here with me, both scientists and thoroughly familiar with the implementation of the Endangered Species Act. I might say, from a standpoint of being an administrative responsibility in the Fish and Wildlife Service, that we feel, with the limited amount of funds and bodies, that we have been functioning pretty darn well in this area and we have great confidence in these gentlemen and I'm sure that they will be happy to answer questions that you might direct or I will certainly try to answer them, if I can, Mr. Chairman.

Senator FORD. I will direct the questions to you and you can call on the other fellows if you want to.

I realize that the Service's official position is in support of the Department's recommendation for reauthorization of the Endangered Species Act at the current $10 million spending level for fiscal year 1977–78.

I also note that information provided by Mr. Greenwalt last fall at the House Merchant Marine hearings indicates that the Service will need, I believe he said, $40 million for fiscal year 1977–78 to fully implement the act. This indicates to me that the current $10 million level is inadequate.

To what extent has the lack of adequate funding prevented the Department and the Service from fully implementing the Endangered Species Act; particularly in the terms of listing species and carrying out other responsibilities assigned to you under that act?

Mr. MILIAS. Well, perphaps, the gentlemen may wish to expand on this, but I would like to give this kind of an answer to that, Mr. Chairman.

I think it is kind of a two-way street. To do all of the things that we should be doing under the Endangered Species Act would undoubtedly cost a great deal more money than is at the present time appropriated.

However, I will also say this, in moving into this whole field of endangered species, that we have been going as rapidly as we could go with the manpower that we had at our disposal; and although with additional funding we would undoubtedly be somewhat further down the road—but I feel this way about money, that I'm not positive that this would all be done and we would be here with a finished endangered species program if great, great sums of money had been thrown at us.

Senator FORD. Well, of course, I don't believe that throwing money at a problem will always solve it, and I agree with your philosophy. But instead of us fussing at you for not doing a job, wouldn't it be better if we gave you adequate funds within a reasonable area, so that you could do a better job?

Would that be a fair statement?

Mr. MILIAS. Yes.

And I would like Mr. Schreiner to take a crack at that, if he would, please.

Mr. SCHREINER. Mr. Chairman, the testimony that you referred to earlier by Director Greenwalt, I believe, actually we thought stated that we could implement the act at the optimum level with about $30 million. But we also pointed out that it would take three to four times the number of warm bodies that we now have on board. Just money alone will not do the kind of job that is required under this act. We have to have a large number of highly skilled scientists—either we have to have them ourselves or we have to have the money to get them.

It is much more preferable to have them on your own because you have much better control, and you get, generally speaking, a better product in the end.

But it would take a great deal more resources to implement this total act at the optimum level than is available to us now or appears will be likely be available to us in the foreseeable future.

Senator FORD. Is one of your real problems personnel ceilings?

Mr. SCHREINER. Yes, sir, it is a very real problem.

Senator FORD. How can that be improved?

Mr. SCHREINER. Well, there are two ways you can solve ceiling problems in a bureaucratic organization. One is the hiring of so-called part-time temporaries or permanent part-times that do not require ceilings; and the other is to contract, and we have about done that to the limit of our ability.

Senator FORD. Let me get into the funding arena a little bit further.

All you gentlemen are aware that H.R. 8092 increases the Department's current authorization by a total of $5 million, for fiscal 1977 and 1978. If Congress passes this legislation, what will the extra money be used for?

And I would like to put a (b) part to that.

Is there any advantage of combining the authorization for 2 fiscal years, as is done in the House bill?

Mr. SCHREINER. First, in answer to your first question, the additional funding made available will be used to enhance our capability to list, delist, reclassify species, and to establish critical habitats.

It will also be used to beef up our very inadequate law enforcement organization that we presently have and give better protection to those listed species and to that very large number of species that we know are going to be listed in the very near future.

And, finally, those funds would be used to effect the recovery of very endangered species here in the United States by what we call our recovery planning process.

Senator FORD. In reviewing the record of the House Merchant Marine Committee's hearings last fall, at that time 7 species had been listed as, I believe, endangered under the authority of the 1973 Act, and 4 species had been listed as threatened.

Now, you may have already done so but for the record, again would you bring us up to date on what additional species have been listed since that time, and also provide us with the date on which they were listed, if you can.

And give us the same information on the critical habitat designation.

Mr. SCHREINER. Mr. Chairman, there have been 21 species listed since the 1973 act passed.

Eleven of those, I believe, were threatened, and the remainder endangered; and one critical habitat.

The snail darter has been listed as of this time. I cannot supply the actual date for off the top of my head but would be glad to provide it for the the record.

Senator FORD. I would appreciate your doing that.

[The following information was subsequently received for the record:]

ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT DETERMINATIONS SINCE THE PASSAGE OF THE ENDANGERED SPECIES ACT OF 1973

Species	Scientific name	Type of listing	Date of final listing	Federal Register citation
Red Kangaroo	Megaleia rufa	Threatened	Dec. 30, 1974	39 FR 44990
Eastern Gray Kangaroo	Macropus giganteus	do	do	39 FR 44990
Western Gray Kangaroo	Macropus fuliginosus	do	do	39 FR 44990
Grizzly Bear	Ursus arctos	do	July 28, 1975	40 FR 31734
Arizona Trout	Salmo apache	do	July 16, 1975	40 FR 29863
Lahontan Cutthroat Trout	Salmo clarki henshawi	do	July 16, 1975	40 FR 29863
Paiute Cutthroat Trout	Salmo clarki seleniris	do	do	40 FR 29863
Newell's Manx Shearwater	Puffinus puffinus newelli	do	Sept. 25, 1975	40 FR 44149
Bayou Darter	Etheostoma rubrum	do	do	40 FR 44149
Scioto Madtom	Noturus trautmani	Endangered	do	40 FR 44149
U.S. Crocodile	Crocodylus acutus	do	do	40 FR 44149
Cedros Island Mule Deer	Odocoileus hemionus cerrosensis	do	do	40 FR 34149
Peninsular Pronghorn	Antilocarpa americana peninsularis	do	do	40 FR 44149
Hawaii Creeper	Loxops maculata mana	do	do	40 FR 44149
Po'o Uli	Melamprosops phaeosoma	do	do	40 FR 44149
Alligator	Alligator mississippiensis	Threatened (S/A)	Sept. 20, 1975	40 FR 44412
Snail Darter	Percina tanasi	Endangered	Oct. 9, 1975	40 FR 47505
Snail Darter	Percina tanasi	Critical habitat	Apr. 1, 1976	41 FR 13926
Gray Bat	Myotis grisescens	Endangered	Apr. 28, 1976	41 FR 17736
Mexican Wolf	Canis lupus baileyi	do	do	41 FR 17736
Bahama Swallowtail	Papilio andraemon bahnotei	Threatened	do	41 FR 17736
Schaus Swallowtail	Papilio aristodemus ponceanus	do	do	41 FR 17736

LISTINGS (ENDANGERED SPECIES) SINCE FEDERAL REGISTER PT. II

Species			Range				
Common name	Scientific name	Population	Known distribution	Portion of range where threatened/endangered	Status	When listed	Special rules
Fishes: Darter, snail	Percina (Imostoma) sp.	NA	United States: Little Tennessee River, London County, Tenn.	Entire	E	12	NA
Mammals:							
Bat, Gray	Myotis grisescens	NA	Central and southeast United States.	do	E	13	NA
Wolf, Mexican	Canis lupis baileyi	NA	Mexico, United States (Arizona, New Mexico, Texas).	do	E	13	NA
Insects:							
Butterfly, Bahama swallowtail.	Papilio andraeman bohnotei.	U.S.	United States (Florida), Bahamas.	United States.	T	13	17.47
Butterfly, Schaus swallowtail.	Papilio aristodemus ponceanus.	NA	United States (Florida).	Entire	T	13	17.47
Butterfly, Lotis blue.	Lycaeides argyrognomon lotis.	NA	United States (California).	do	E	14	NA
Butterfly, El Segundo blue.	Shijimiacoides battoides allyni.	NA	do	do	E	14	NA
Butterfly, Smith's blue.	Shijimiacoides enoptes smithi.	NA	do	do	E	14	NA
Butterfly, mission blue.	Icaricia icarioides missionensis.	NA	do	do	E	14	NA
Butterfly, San Bruno Elfin.	Callophrys mossi bayensis.	NA	do	do	E	14	NA
Butterfly, Lange's metalmark.	Apodemia mormo langei.	NA	do	do	E	14	NA

NOTES
12-40 FR 47506; Oct. 9, 1975
13-41 FR 17740; Apr. 28, 1976
14-41 FR 22044; June 1, 1976

Senator FORD. Let me get to a sore that I think has festered pretty good. I think you have indicated in your statement that major problems with getting species has been the lack of sufficient funding and personnel to do so up to a point.

But the subcommittee has been told that another big problem boils down to the plain old bureaucratic redtape.

For instance, it is charged that a member of your staff will submit a proposal on a listing, and that proposal will make it part of the way up the chain of command and then will be sent back to the originator for additional information. This sort of thing wastes a lot lot of time and money.

Has the Service or the Endangered Species Office been able to develop any sort of guidelines for individuals who are responsible for preparing these proposals to let them know exactly what materials they are expected to provide?

Mr. SCHREINER. Mr. Chairman, if I may anticipate from the questions—and we're well aware of the criticism, of course, ourselves——

Senator FORD. If you anticipated, then I did not disappoint you in being able to ask it, did I?

Mr. SCHREINER. No, sir.

We have kept records on the actual amount of time that it takes for a proposed Federal Register document to move through the Service bureaucracy; in fact, the Department bureaucracy from the time it leaves the Endangered Species Office as a complete package until it reaches the Federal Register. And it has taken on the average of 9 days, with the past most recent four listings. That is a considerable improvement over what it took before, because we have streamlined our systems, and we have a much better system for doing it now. And I believe that problem of getting documents through the system has largely been corrected.

Senator FORD. How many people have to scrutinize a proposal before it gets into its final stage? How many stops does it have to make along the way?

Mr. SCHREINER. I believe there are five, possibly six, until it reaches the Director for signature.

That is a decrease from what was about 12 before we had the system streamlined.

Senator FORD. You have cut it in half, then, from 12 to roughly 6?

Mr. SCHREINER. Approximately.

But "cutting" it is the wrong word. We have combined certain reviews and handled other reviews by having them done in advance of the time it actually goes through the system.

Senator FORD. So the same number of people still control the advance of the proposal?

Mr. SCHREINER. There are fewer people reviewing them now than there were before, Mr. Chairman.

Senator FORD. Well, I just said you cut down 50 percent, and you said no, you just combined things; and then you turn around and tell me that fewer people are scrutinizing the proposals.

Mr. SCHREINER. Well, I am not being clear, obviously.

Senator FORD. Well, I'm a little thick, maybe, so I'll give you the benefit of the doubt.

Mr. SCHREINER. No, sir, I'm sure it's my problem and not yours.

Senator FORD. Well, I'm glad you recognize that.

Mr. SCHREINER. Several of the people who actually review documents during the surname process, as it has been called, now conduct their reviews while the documents are being formed in the Office of Endangered Species. Therefore, it is no longer necessary to run them through the surname process.

Senator FORD. Dr. Talbot, the previous witness—I'm sure you listened to him—indicated that the Smithsonian plant list could be considered the best scientific information available on this subject.

How do you accept this information that comes to you from the Smithsonian after it has gone through the peer review process which Dr. Talbot described?

What do you do with that?

Mr. SCHREINER. We have accepted the list that the Smithsonian submitted as a petition to list them, Mr. Chairman.

Senator FORD. Then does it go through the five or six different positions after it has gone through the Smithsonian procedures?

Mr. SCHREINER. Well, the problem here is, Mr. Chairman, the act requires a great deal of things that were not discussed by Dr. Talbot before a listing can actually be made. You cannot just get a list of plants or animals from somebody and then go publish them in the Federal Register. In fact, the act requires many other actions.

And if, of course, we don't list according to the law and what it requires, we are highly likely to go to court and be challenged.

I think you understand, sir, that every listing is favored by some people and disfavored highly by others. Those who do not like what you are doing are highly likely to take you to court. Therefore, it is absolutely essential that when you list, delist, reclassify a species or habitat, that you do it according to the letter of the law.

Now, there is much more required in just preparing the list before you can actually publish a list of any species or plant.

Senator FORD. Did the Smithsonian document the reasons they recommended the listing of certain plants that they studied? Do they just give you a list? They don't give you any of the material that was used to develop the request?

Mr. SCHREINER. No, sir.

I will ask Dr. McBride, who is my botanist, to my right to correct me if I am wrong, but I believe the list actually contained the process that was used in deriving it. It does not contain, as I recall, any summary of the data which supports that contention or the justification.

However, that is available in the Smithsonian, and my two botanists have spot checked that and determined that it is adequate for a proposed rulemaking. And we are in the process of proposing the 1,700 most endangered plants on that list now.

Now, the reason we have not done it was explained by Dr. Talbot. It is because we do not have regulations published for handling plants once they are listed. We must publish regulations for handling plants before we actually list them. Otherwise, we will get into a tremendous problem by having a large list of endangered plants and no way to handle permits for scientific exceptions or for propagation exceptions or for the good of the species or whatever it requires.

Now, those regulations are the proposed regulations for plants will be published in the Federal Register probably next week. They are coming up that surname route now. And I anticipate another 4 or 5 days. It takes an additional 4 days, approximately, after a Federal Register document goes to the Federal Register for it to get published, so we anticipate having proposed regulations for handling plants by next week.

We have to wait, of course, 60 days, according to the act, for the proposed regulations to be reviewed by that vast audience out there who is concerned about the subject and for them to prepare their comments on it. At the end of 60 days we will review their comments as quickly as possible. If that is a lot of comments—and I suspect it will be—it will take some time. And prepare a final rulemaking for the regulations of plants.

As soon as we have done that, Mr. Chairman, we are fully prepared to propose the first 1,700 plants that are most in trouble, according to the Smithsonian list.

Senator FORD. It seems that if this documentation can be attached to each of the recommendations, this would expedite your procedure and you would not have to go through this same surname group of people or go through 4, 5, or 6 different stops before it hits the deck.

Mr. SCHREINER. Let me explain to you the surname route. I think it would clarify this and correct a statement you just made, that we don't quite agree with.

After the package, the scientific package, leaves the Endangered Species Office it must go to our Law Enforcement Division to check its enforceability. It then must go to the Solicitor's Office to check its legality, to see if it is entirely legal. It then must go to our public information officer, and that takes a very short time, to prepare any news releases that are necessary to keep the public informed about what we are doing. It then comes to me, and I recommend it to the Director for signature.

I think we have shortened the surnaming process about as low as it can be in any bureaucratic organization, Mr. Chairman, and this is not, in fact, a problem.

What takes so long is to prepare all of the things that are necessary before they ever start on the surname route.

Senator FORD. Apparently, your legal problem is a major hurdle?

Mr. SCHREINER. It can be, but it has not been recently.

As I have stated to you, we are completing the surnaming process in 6 to 8 days now. That is not a big hurdle.

Senator FORD. I have a couple of questions I want to ask you, if I may.

I touched on this with Dr. Talbot, and this gets into the question of best scientific information available.

When you contract out a status study to a university or another organization which is qualified under your terms and regulations, do you accept the findings of this body to be the best scientific information available?

Do these findings require additional verification by the Service?

And if so, what type of verification and how long does this verification usually take?

Mr. MILIAS. Well, Mr. Chairman, I think this is the sort of thing that kind of falls in place, and I will give the reasons why quickly, that we have a vast number of scientists on our own staff at Interior, and the way this works, is those people know pretty well who are the top men, up to full speed on a particular animal or species or what we may happen to be dealing with at the moment. They know where to go to get the best expertise if we are going on a contract basis, and presumably—and all of these things are subjective. Who is to say this is the best man in the world or that one is?

But we have a high degree of confidence that our people know where to go to get the best expertise available on a species in going the contract route.

Perhaps Mr. Schreiner would like to add something to that.

Mr. SCHREINER. Mr. Chairman, the primate contract that you spoke of earlier, some of your information is a little wrong, sir, if I may say so.

Senator FORD. I don't mind being corrected.

Mr. SCHREINER. We have not yet received the report on the status from the primates contractor in final form. We had a draft of it which was submitted to us, as I recall, in January. I would like to reserve the right to correct that date later on, if I may, but I believe it was actually submitted to us in January.

Now, this report covered the primates of the world, some of which are in trouble, some of which are not. And we took from the contract, from that draft report, that unfinished draft report that we had at this point in time 23 or 25, as I recall, of those that were recommended for listing. We have proposed them to be listed, and we will list them as soon as the 60-day comment period is up.

Senator FORD. Of course, I may be wrong in my information, but I don't usually make a statement unless I go to the source, and the source is the organization developing this study, and they indicated that they submitted the whole ball of wax in January 1975. So maybe we need to find out. You have your opinion on what happended, and you indicated it here. But it seems to me like 16 months from the time they indicate the total report was there to the filing is an inordinate delay.

Mr. SCHREINER. I would agree with you, sir. It is inordinate and inexcusable, if that is the case. I am sure it is not, sir.

Senator FORD. Well, we will find out. That's why we have hearings.

Dr. Talbot spoke about an environmental impact statement which the Service agreed to prepare. What is the status of that report?

Mr. SCHREINER. Very much as Dr. Talbot stated.

We have been coordinating and cooperating with CEQ to determine what the best method of doing this programmatic impact statement is. We currently have—there are many different ways to do it, Mr. Chairman. We could write individual programmatic statements on each section of the act, or we could write individual programmatic statements on major functions in the act, or we could write one on the whole program, including the implementation of the convention.

We currently have analyzed those various alternatives and sent our suggestions over to CEQ for their recommendations. I assume they are going to be responding to that soon.

All I can say to you is, at this time, we agree we must do a programmatic impact statement or a series of programmatic impact statements. We do not have the manpower to do it internally without stopping everything else. We will probably try to contract that out as quick as we decide how best to go at it.

Senator FORD. Having been responsible for the operation of a State prior to coming to the U.S. Senate, I want to ask my final question, and then I have a question that was submitted by another Senator.

You indicated in your statement that the act can be implemented only with the participation of the States.

It seems to me that a big factor in encouraging the States to participate in this program is the money that they receive under section 6 of the act. And yet the administration has asked for no funding of section 6 for fiscal year 1977.

I wondered why not, and did the Service recommend to OMB that the section be funded?

We asked the States to do a lot and put a lot of responsibility on them, but wind up asking them to cooperate with no help from us.

Mr. MILIAS. I thought you would never ask that.

Senator FORD. Well, I always get around to it but sometimes I'm late.

Mr. MILIAS. Mr. Chairman, in answer to that question, of course—as I am sure you are aware—the administration is presently deemphasizing categorical grants. That is the position we are in.

You asked what the Service's position had been earlier prior to a decision by OMB on this matter. The Service requested $4 million for this purpose. The Department recommended $2 million. And OMB recommended nothing. So that is exactly where we stand on this situation.

Senator FORD. The Service recommended $4 million; the Department recommended $2 million; and OMB nothing?

Mr. MILIAS. Yes.

Senator FORD. We will see about that.

Senator Jackson asked that this question be posed here today on falconry, and I am reading his question:

> During the course of Mr. Greenwalt's confirmation hearings in 1974 I asked the following question: "Could captivity bred endangered species be used for falconry?" In his response he indicated that the Interior Department hoped to either amend the Endangered Species Act by regulation pursuant to the authority of the act, exempt captive-bred populations of endangered species from certain prohibited acts.
>
> The assumption at this time was that he was talking about falconry. I now find that, contrary to this understanding, the Department has promulgated regulations specifically prohibiting such action.
>
> Will you please explain to me why this has been done and inform me of your future plans in this area?

And that is a statement from Senator Henry M. Jackson.

Would you answer that for the record, please.

Mr. MILIAS. Mr. Parsons will handle that.

Mr. PARSONS. Mr. Chairman, we have to look at two different statutes in order to answer that question. One is the Endangered Species Act and the other is the Migratory Bird Treaty Act. The falconry regulations are issued under the authority of the Migratory Bird Treaty Act, and some migratory birds are, obviously, endangered species. There is obviously a connection in that both statutes have to be met.

As the falconry regulations now stand, there is an interim set of regulations in effect until the end of this year. And then next year a set of regulations requiring the joint Federal-State falconry program will go into effect.

Under the present regulations there is provision for use of certain endangered raptores if they were held prior to the Endangered Species Act of 1973. The Endangered Species Act has what we call a grandfather clause that says while this was held in captivity or a controlled environment not in the course of commercial activity at the time the act was passed, then that wildlife is exempt from the act. So there are certain animals and certain property that is exempt from the Endangered Species Act.

The progeny of these animals, if the progeny are born after the Endangered Species Act went into effect, are not exempt from the act and, therefore, the requi ements of the act would have to be met if the things that were to be done violated the act.

It also has to be understood that the Endangered Species Act does not prohibit all things. It prohibits taking; it prohibits interstate transportation in the course of commercial activity or interstate sale; it does not prohibit possession or use.

The Migratory Bird Treaty Act, on the other hand, does prohibit possession or, well, through prohibition or possession, the use of certain migratory birds.

The migratory bird regulations, the falconry regulations, do have a prohibition against the use of endangered raptores, and this is not under the Endangered Species Act; it is under the Migratory Bird Treaty Act. But it says that the raptores are indeed endangered.

The purpose of the prohibition is, of course, to protect the wild population of these endangered raptores. So we use one act to accomplish the purpose of the other act as well.

There is a slight inconsistency in the regulation itself in regard to preact endangered raptores and their use for falconry. It was intended that the raptore regulations allow the continued use of illegally held grandfather clause endangered raptores for falconry. This is clear in the preamble. But through a drafting error, it was not reflected in the body of the regulations themselves, and a document to correct that is being prepared.

Other than that, however, the regulations specifically prohibit the use of endangered raptores that are under the coverage of the Endangered Species Act for the purposes that I indicated.

There is another crossover, if you will, that was referred to in Senator Jackson's question, and that is what we call the captive self-sustaining populations.

Under the Endangered Species Act we have just published regulations amplifying this concept whereby, if there is a captive population of unendangered species, that population can be considered a separate population, in a sense, and that separate population is self-sustaining; so that what you end up with is a situation where captive animals can be bred and utilized for certain purposes without affecting the wild populations. Then we would downgrade that particular wild population to a threatened status. That population, being threatened rather than endangered, would be subject to more uses under our threatened species regulations.

If the peregrine falcon, for instance, the varieties of peregrine that are endangered, would qualify for that treatment, then they could be downgraded into the threatened category. We have proposed 17 species of falcons not to be included in these species at the present time, and I think anyone who takes a look at our September regulations from last year and regulations we just proposed can see what the criteria are that we follow. And, also, if they look at the preamble to this last publication that came out yesterday, they can see the kind of data that we used in summary to determine that, in fact, a given captive population met the criteria. And, of course, now we are open for public comment to see what everyone thinks about this.

And, of course, Mr. Schreiner indicated that there are always at least two sides to the issue.

So this is the kind of process we are in. I don't know for a fact whether anyone has petitioned the Service to treat falcons in this manner. If they have, I'm sure it will be considered, and that is a possible route for falconry.

We are working in draft on falconry propagation regulations, which are in addition to the falconry possession regulations. And that will have something to say about the treatment of falcons. And I'm sure the issue of the treatment of the endangered raptores will come up, too.

Hopefully, that has answered the Senator's question.

Senator FORD. I want to compliment you on your perfect bureaucratic answer.

I am going to ask two things and one final question, and I will ask all of you to remain to answer some questions that might come up a little later in the testimony this morning. But I would like for you to submit in writing for the record a description of what you have been doing to eliminate the redtape and—even though we got into it briefly here this morning—what you plan to do in the future.

[The following information was subsequently received for the record:]

The attached memorandum outlines the action that has been taken by the Fish and Wildlife Service to expedite the review process for listing, delisting and reclassification actions under the Endangered Species Act of 1973.

APRIL, 1976.

Memorandum to: Reviewers.
From: Associate Director—Federal Assistance.
Subject: Revised Procedure for Preparing, Reviewing and Forwarding Notices, Proposals or Final Rulemakings for Threatened Species, Endangered Species or Critical Habitat.

To expedite the process of determining Threatened Species, Endangered Species or Critical Habitat, the Office of Endangered Species has proposed, and I hereby approve, a revised method of formatting, reviewing and approving Notices, Proposed Rules or Final Rules relating to such actions.

This new procedure is intended to insure that *all* material relevant to a given action is assembled into a readily recognizable package and made available for review and/or approval at the same time, thus helping insure that all required notifications are accomplished, all required documents are prepared and allowing decision-makers to review such documents in context.

This new procedure also modifies and shortens somewhat the Service's "Surname" process. This modification is intended to reduce the amount of time needed to move a package from the originating staff desk to the *Federal Register* and to help insure that persons with only marginal interest in the subject documents are not burdened with reviewing them.

The Office of Endangered Species will document this procedure in detail for staff reference and to insure that all such actions are handled in a standard, orderly manner.

Briefly the procedure is as follows:

1. The required documents for Notices, Proposed Rules and Final Rules have been identified and "samples" of each have been prepared. These samples will be used as guides in drafting "live" documents.

2. SE staff will work closely with Law Enforcement, Public Affairs and the Office of the Solicitor in preparing such "live" documents and drafts will be developed in close cooperation with these three offices.

3. Once *all* such documents have been drafted, they will be assembled into a tabulated folder in which they will remain until they have completed the review process. Standard folder colors have been designated for each type action as follows:

Red—will indicate draft *Final* Rules;

Yellow—will indicate draft *Proposed* Rules; and

Blue—will indicate a draft *Notice*. Notices will be used sparingly.

It is intended that these unique, colored, plastic folders will enable persons on the surname route to readily identify such documents and to expeditiously move them along. It should be noted that even the truncated surname system herein established will still require nearly ten working days even if a package stays on each desk only one day.

4. An "Endangered Species Control Sheet" will be attached to the cover of each package to document the progress of the package. That sheet will be incorporated into the permanent files and should be accurately and legibly completed.

5. After the package has received final Directorate approval and Secretarial endorsement, it should be returned immediately and intact directly to the office of endangered species.

6. Endangered Species will make the additional, required copies of the Federal Register Documents, transmit the required copies to the Federal Register for publication and distribute the other copies.

7. While 6 above is being completed, SE will type the approved, draft correspondence into finals and hold them until copies of the published document are received from the Federal Register. At that time, the required copies of the FR documents will be enclosed with the final correspondence and those letters will be transmitted directly to the Associate Director—Federal Assistance for signature and mailing. The final will not repeat the surname route already traversed by the drafts.

8. These packages will be hand-carried from Office to Office. As soon as an Office has completed its review of the package, Mrs. Evelyn Schoernborn (343–4646) should be called to arrange for messenger pickup.

9. Copies of all relevant, surnamed and/or signed documents will be permanently retained in the Endangered Species Case File for the action in question.

The attached "prototype package" is a "live" package and should be moved through the system as rapidly as possible. However, since it is the first test of the new system, any comments or suggestions would be appreciated and should be forwarded to the Office of Endangered Species.

This revised procedure is intended to accommodate routine actions. It is recognized that exceptions and "emergencies" periodically will arise which will require some circumvention of these procedures.

KEITH M. SCHREINER.

Senator FORD. And second, I would like to have submitted to this committee monthly a tabulation of the status of proposals and the progress of work in establishing these proposals.

Mr. MILIAS. Certainly.

[The following information was subsequently received for the record:]

MONTHLY REPORT

SECTION OF BIOLOGICAL SUPPORT

APRIL 1976

Publications: Snail Darter, final determination of Critical Habitat (41 FR 13926); proposal on American Alligator (41 FR 14886); proposal on 27 species of primates (41 FR 16466); final listing on 2 butterflies, Mexican Wolf, Gray Bat (41 FR 17736); proposal on 32 U.S. snails (41 FR 17742).

Proposed and final rulemakings prepared: Proposed plant regulations; proposal to list 1700 species of plants; proposal to list seven San Clemente animals; final rulemaking to list six butterflies; proposal on Peregrine Falcon Critical Habitat; final rulemaking on 159 Appendix I species; proposal to list 3 sea turtles under Similarity of Appearance clause; final rulemaking on Critical Habitat for four species.

Environmental impact assessments prepared: Snail Darter, Critical Habitat; American Alligator proposal; proposal on 27 species of primates; proposal on U.S. snails; proposed listing of 1700 plants; proposed listing of Yellow-shouldered Blackbird; proposal on San Clemente animals; final rulemaking on 159 Convention species; proposal to list 3 sea turtles under Similarity of Appearance clause; final rulemaking on Critical Habitat for 4 species.

CSO correspondence: 16.

Permits: Permission given to publish applications—16; permits approved—19; additional information requested—7.

Where We Stand on Major Activities

Grizzly bear: Critical Habitat is currently being determined.

Alligator: Proposed listing published 8 April 1976. Final determination should be made in July or August.

Sea turtles: Joint proposal with Commerce Department to treat green, loggerhead, and Pacific ridley sea turtles under Similarity of Appearance clause should be published in May or June.

Eastern timber wolf: No action can be taken until recovery team submits final recommendations.

Critical habitat: Draft final rulemakings are being prepared on crocodile, condor, Indiana bat, and manatee. Publication expected in June or July.

International convention: Draft final rulemaking is completed; publication expected in May or June.

Plants: Draft proposed rulemaking is completed; publication anticipated in May or June.

27 Primates: Draft final rulemaking and assessment being prepared; publication expected in June or July.

Leopard: A contract to Texas A & M University to conduct a status survey is being drawn up at the present time.

Senator FORD. And one last question.

What can the Senate Commerce Committee do to make your job of administering the Endangered Species Act easier?

Mr. MILIAS. I think I will let Mr. Schreiner, who administers the act, answer that.

Mr. SCHREINER. Mr. Chairman, the biggest problem that we face in implementing the act as rapidly as (1) we would like to and (2) everybody else would like us to is: Permanent ceilings. Pure and simply.

In addition, it is funds.

There are minor changes that are needed in the law which were presented to the House oversight committee which would help us do the job best.

Other than that, I think that all I can say is that a little patience while we get all of the rules and regulations that are necessary to implement this act published. Now, we have already gone through a very long list of publications and rules and regulations. We still have two or three to go to be fully prepared to implement the act.

Those things had to be done first, Mr. Chairman. Otherwise, we would have been in court, and the act would have been severely challenged in many cases. That has not happened because we have gone carefully and, I think, judiciously in publishing the rules and regulations and getting full public comment necessary and getting as much understanding as possible to get that job done.

73-447—76——3

In short summary, some more people, a little more money, and a little more patience while we get all of the rules and regulations needed, essential, that is published.

Senator FORD. Thank you very much, gentlemen. And if you would stay around a little while, we may want to ask you to respond to some of the comments that are going to be made.

[The statement follows:]

STATEMENT OF GEORGE W. MILIAS, DEPUTY DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. Chairman, I appreciate this opportunity to appear here today to discuss our endangered species program and the need to extend the authorization of appropriations to continue the program.

Mr. Chairman, we urge that S. 3122 be enacted promptly. The Department of the Interior's endangered species program will be unable to continue functioning after September 30, 1976, without this authorization. S. 3122 would authorize appropriations of $10 million annually for two years, fiscal years 1977 and 1978.

To date appropriations to the Department of the Interior's Fish and Wildlife Service, under section 15(A) of the Endangered Species Act have been $4.6 million in fiscal year 1974, $5.6 million in fiscal year 1975, $7.3 million in fiscal year 1976, and $1.8 million has been authorized for the transition period. In addition, $2 million in grant-in-aid funds were appropriated for fiscal year 1976.

An authorization of $20 million over the next two years will permit actions to be taken to protect those species which are the most important to the Ameri can people and which are in the most critical condition.

The Endangered Species Act is so comprehensive in its scope and impact that it would be virtually impossible, even with very high levels of funding and staffing, to accomplish all the work that is mandated by the Act. Some 170 man years of effort are presently available to the Fish and Wildlife Service to carry out the program, other than grant-in-aid and land acquisition. We can only hope that this level of staffing will increase over the next few years.

We have had to establish priorities for handling the requirements of the Act. The Service has been and will continue to concentrate its efforts on native species before foreign species, and particularly on native species that will benefit from being listed first. We are currently concentrating on consummating cooperative agreements with the States and are almost ready to sign agreements with 11 States, including Alaska, Arkansas, California, Colorado, Delaware, Florida, Michigan, New Jersey, New York, New Mexico, South Carolina and Washington. Only with their full participation can the job be done.

Within the requested funding levels we will continue to screen candidate species and conduct status surveys to determine which species should be listed. There are presently 439 species of animals listed as either endangered (428) or threatened (11), and we plan to review some 3,500 over the next 3 years and list those species needing protection. We have not yet put any plants on the lists, but we presently have a proposal to determine some 1,700 native plants as either endangered or threatened. We must publish regulations for handling endangered plants before we can list. We hope to publish proposed regulations on plants soon. Within the next three years we plan to review the status of about 5,000 plants and list as either threatened or endangered those plants warranting such protection. Since December 28, 1973, we have received more than a dozen and a half petitions to list thousands of species, and on our own have initiated action on well over a hundred other species. Generally speaking, higher forms will be given priority over lower forms, and full species will be more important than lesser taxa. There will be, of course, exceptions to these general rules when the need to deviate from them is urgent.

We are pushing ahead on regulations facilitating legitimate commerce in captive self-sustaining populations of endangered species. Regulations amplifying those published in the Federal Register September 26, 1975, were published as a proposed rulemaking on May 5, 1976. The regulations would propose the establishment of several captive self-sustaining populations, as well as outline the specific requirements for those persons who wish to engage in such commerce. These procedures have been reviewed by the professional zoo associations and representatives of conservation and humane organizations to make sure they are reasonably acceptable—of course, it is difficult to get complete agreement on any issue.

The initial proposal will provide for the establishment of captive self-sustaining populations for seven species of exotic pheasants, three species of waterfowl, one species of quail, the tiger, leopard, jaguar, and two species of lemur.

Under these procedures, qualified individuals and institutions will be able to transfer ownership of such animals between and among themselves in an efficient and expeditious manner. Sufficient control over the use of these animals is necessary to insure that individual animals needed by man for legitimate reasons are available from captive stocks, thereby reducing the demand for such animals from endangered wild populations. This will enable man's legitimate needs for such animals to be met without exploiting and thereby jeopardizing the continued existence of the endangered wild populations. It will also serve as insurance against disasters, either man-made or natural, wiping out or further threatening the wild populations of these species. We feel that the implementation of these procedures will alleviate most of the concerns of those persons who have the need to transfer ownership of these species among themselves.

The 50 endangered species recovery teams composed of Federal, State and private experts are well on their way to developing plans and programs for the recovery of some 62 species. The recovery team program offers an opportunity for all levels of government and the private sector to work together in a coordinated manner with a common goal, and to apply all of their resources where they will do the greatest good.

We are continuing to take steps to insure that all other Interior agencies and other Federal agencies are aware of their responsibilities under section 7 of the Act. That section, as you may recall, directs that all Federal agencies take precautions to insure that actions authorized, funded or carried out by them do not jeopardize the continued existence of endangered or threatened species. The ad hoc interagency committee established in June 1975 to develop guidelines for agencies to use in complying with section 7 has reached agreement on all portions of the guidelines. Agencies participating on the committee include the Corps of Engineers, the Department of Commerce, the Department of Transportation, the Environmental Protection Agency, the Department of Agriculture and within the Department of the Interior, the Fish and Wildlife Service, the Bureau of Land Management, the Bureau of Reclamation and the Geological Survey. Procedures have been agreed to involving the consultation process required by section 7. Guidelines have been distributed to all agencies impacted by section 7.

Critical habitat listing has proceeded. Notice of intent to review the critical habitats of 108 endangered species in the United States was published in the Federal Register December 16, 1975. Seven of the species were selected as highest priority. These species are the Indiana bat, Mississippi sandhill crane, American crocodile, whooping crane, Florida manatee, snail darter and California condor. We have published in the Federal Register proposals to determine critical habitat for six of these species, and the critical habitat of the seventh species—the snail darter—has been listed.

The critical habitat concept has generated considerable concern and misunderstanding. Designation of an area as critical habitat does not necessarily restrict development or utilization of the resources of the area. Private businesses or activities which are not authorized, permitted, licensed, or supported financially by the Federal Government are not affected by an endangered species determination nor by listing of an area as critical habitat. Furthermore, it is possible for Federally authorized or funded programs to be carried out in the designated areas as long as the activity does not adversely affect the endangered species or its habitat. When appropriate, we are attempting to propose critical habitat along with proposals to list a species. Critical habitat designation for species already listed as endangered is being handled on a priority basis.

With the signature of the tenth nation to the Convention of International Trade in Endangered Species of Wild Fauna and Flora on April 2, 1975, steps to delineate the U.S. Scientific and Management authorities were initiated. The Executive order to designate the scientific and management authorities was signed by the President on April 13, 1976. Soon, we will publish proposed regulations which will establish procedures for issuing permits to import and export threatened and endangered plants. These regulations, plus those already in effect for animals, will enable us to meet the responsibilities assigned us under the Convention and to integrate those responsibilities with the requirements of the Endangered Species Act.

The Endangered Species Act contains an authorization for appropriations in section 6(i) as well as section 15(A) which we are considering today. Section 6(i) provides grant-in-aid funds to States and expires June 30, 1977. Since the au-

thorization in section 6(i) expires a year later than the authorization in section 15(A), it was not included in the Administration's proposal transmitted to Congress May 15, 1975.

Next, Mr. Chairman, I would like to spend a little time discussing the amendments to the Endangered Species Act which were passed by the House on February 17, 1976. Basically, S. 229 incorporates amendments recommended by the Department of the Interior into the Endangered Species Act.

Specifically, the changes which would be brought about in the Act by enactment of S. 229 are as follows:

Section 1 waives the requirement that each State be allowed 90 days to submit its comments and recommendations on any regulations issued by the Secretary of the Interior or the Secretary of Commerce in regard to an emergency posing a significant risk to the well-being of any endangered or threatened species. The amendment leaves untouched the procedural safeguard that limits the force and effect of any such emergency regulations to 120 days. We recommended this amendment and concur with it.

Section 2 of S. 229 allows a limited exemption for sperm whale oil and scrimshaw to the prohibitions contained in the Act for certain endangered species parts or products which were legally obtained and held in the United States prior to December 28, 1973, allowing them to be sold in interstate or foreign commerce. Regulations and procedures governing the sale of these items are contained in the legislation.

We recommended this amendment in a larger package which contained additional exemptions for holders of endangered species at the time of enactment to allow the disposal of such species or parts or products within three years. This amendment would allow individuals as well as commercial zoos and traveling circuses or exhibitions to continue to utilize in commerce pre-Act endangered wildlife. The House did not act on the additional amendment. It is still needed, and we urge Senate action. We see no justifiable reason for providing an exemption for certain whale parts or products and not for other whale parts or products such as ambergris. Further, we see no justifiable reason for singling out dealers in whale oil and scrimshaw from dealers in other endangered animals or their parts or products likewise impacted by the 1973 Endangered Species Act.

Mr. Chairman, there are individuals who legally possessed, prior to enactment of the 1973 Act, live endangered species and parts or products of endangered species for the purpose of sale or for other activities of a commercial nature. The Endangered Species Act of 1969 prohibited only the importation of species listed as endangered. Sale, interstate transport, export and other activities of a commercial nature were not prohibited. With passage of the 1973 Act, such activities become illegal.

Tortoise, spotted cat and reptilian products exist in this country in commercial quantities, and we have some indication of commercial stocks in other endangered species parts or products lawfully acquired prior to the 1973 Act. Regardless of the extent or volume, the individuals in possession of such items should have the same opportunities as those in possession of scrimshaw or whale oil. Indeed, we question the constitutionality of the House-passed amendment discriminating between two different classes of people essentially in the same situation without some rationale for the distinction. Mr. Chairman, we urge that this Committee and the Senate take a broader approach than the House and enact our amendment as contained in the Department's report to the Chairman dated October 2, 1975.

Section 3 of S. 229 clarifies the intent of the notice and review requirements to apply to all applications for an exemption or permit. We also recommended this amendment.

Section 4(1) permits duly authorized enforcement agents to make arrests without a warrant if the agent has reasonable grounds to believe that the person to be arrested is committing the violation in his presence or view. This authority was in the Endangered Species Act of 1969, is found in all other wildlife legislation, and was in the bills which were the basis of the 1973 Act. It appears to have been inadvertently omitted in the drafting process. We recommended this amendment and concur with it.

Section 4(2) authorizes the Secretary to dispose of property which has been forfeited to and stored by the Government. We recommended such a provision; however, the House restricted it by prohibiting sale. We believe sale may be a valid means of disposal when such a sale will not increase pressure on the wild populations of endangered or threatened species. In addition, we would like authority to dispose of equipment which has been confiscated while enforcing the Act by sale.

Mr. Chairman, we feel that the Secretary's authority to dispose of forfeited goods should not be governed by the General Services Administration's surplus and excess property statutes. Under these statutes, it may be necessary to sell the property at public auction or to allocate property excess to program needs of the Department to other agencies in situations where such action may be contrary to the Endangered Species Act or sound public policy. We hope this amendment will be clarified to insure that GSA's surplus and excess property statutes do not apply.

Section 5 of S. 229 excludes from the definition of "commercial activity" the exhibition of commodities by museums or smaller cultural or historical organizations. The effect of this amendment is to allow the interstate exchange of displays between such organizations without violating the Act. The Department of the Interior by administrative regulation on September 26, 1975, further defined the term "industry and trade" as it is used in the Act's definition of the term "commercial activity." Our new definition narrows the scope of those activities which are prohibited by the Act, that is, activities which involve "the actual or intended transfer of wildlife or plants from one person to another in the pursuit of gain or profit." This definition is broader than the amendment in the sense that it would probably permit other persons or institutions to make nonprofit transfers. However, the amendment was necessary because the Department of Commerce has not adopted the same definition as we have. The amendment in S. 229 is not intended to limit our definition, and we therefore have no objection to it.

In addition to passage of S. 229, the House passed H.R. 8092 authorizing $25 million for the endangered species program for fiscal years 1977 and 1978. There is no limit on the amount that can be expended each year, but rather an overall limit of $25 million for two years. The Department requested an authorization of $10 million for each of two fiscal years as contained in S. 3122. As indicated in the report to the Committee on S. 3122, we continue to support the Department's recommendation of $10 million annually for FY 1977 and a like amount for FY 1978.

Mr. Chairman, this concludes my prepared statement. I will be pleased to answer any questions you might have. Thank you.

Senator FORD. Jack Gehringer, who is the deputy director of the National Marine Fishery Service, Department of Commerce.

STATEMENT OF JACK GEHRINGER, DEPUTY DIRECTOR, NATIONAL MARINE FISHERY SERVICE, DEPARTMENT OF COMMERCE; ACCOMPANIED BY ROBERT STEVENS, ENDANGERED SPECIES COORDINATOR; ROBERT GORRELL, ENDANGERED SPECIES SPECIALIST; PAUL KIEFFER, STAFF ATTORNEY, GENERAL COUNSEL'S OFFICE; AND MORRIS PALLOZZI, CHIEF, LAW ENFORCEMENT DIVISION

Mr. GEHRINGER. Mr. Chairman, I am Jack W. Gehringer, deputy director of the National Marine Fishery Service. I have with me this morning several staff members who can supply information to specific questions if I am unable to.

On your far right is Dr. Robert Stevens, the coordinator of our endangered species program; Mr. Robert Gorrell, staff specialist.

On my immediate right is Paul Kiefer of the Office of General Counsel from NOAA, and on the far right, Mr. Morris Pallozzi, head of our enforcement division, National Marine Fishery Service.

I do have a several-page statement, but, I think, to provide the background and maybe save reference to questions, if I may proceed through it, I would appreciate it.

Senator FORD. You may proceed.

Mr. GEHRINGER. I am pleased to be here today to discuss the role that our agency has been performing under the Endangered Species Act of 1973.

I will briefly mention the basic responsibilities of the Department of Commerce under the act, relate the program direction we have taken in meeting those responsibilities, describe our major accomplishments to date in the administration of the act, and indicate planned activities and anticipated funding needs. I will then address S. 2334 and the need for an extension of appropriations authorization. Lastly I will comment on the need for certain exemptions from the act's prohibitions relating to scrimshaw, sperm whale oil, and for captive-bred endangered species.

The responsibilities of the Department of Commerce under this act have been delegated to the National Marine Fisheries Service. Our basic responsibility is to develop and maintain conservation programs for fish, wildlife, and plant species of the marine environment. In meeting these responsibilities we have, of course, worked very closely with the U.S. Fish and Wildlife Service. We have also interacted with States, other Federal agencies, and, in certain situations, foreign countries. Our actions have involved administration, law enforcement, and research functions. Our major thrust on the State level has involved State-Federal cooperative agreements under section 6 and the possible listing of resident species.

On the Federal level, we have entered into interagency memoranda of understanding with the U.S. Fish and Wildlife Service to provide for cross-utilization of enforcement authority and capability, and to clarify jurisdictional responsibilities and listing procedures. We have also interacted with the Customs Service of the Treasury Department concerning import/export enforcement activities. To a lesser degree, we have worked with the State Department, Agriculture Department, and the Environmental Protection Agency.

International cooperation has involved soliciting views and information from foreign countries concerning the possible listing of species—either resident in those countries or harvested by residents of those countries. We have also encouraged research on "endangered" species of whales, and attempted to persuade foreign countries, through the International Whaling Commission, to adopt a 10-year moratorium on the commercial harvesting of all large whales. Meeting no success on adoption of a 10-year moratorium, we worked toward a reduction in catch quotas to develop rational harvest levels of overexploited species, and have achieved significant reductions in fin, sei, and sperm whale quotas.

Other program actions have included publication of final regulations covering general provision, civil procedures, seizure and forfeiture procedures, and permit provisions. We have also proposed regulations on State-Federal cooperation under section 6 of the act.

Under the permit regulations, we have processed permit applications for scientific purposes involving the endangered large whales. The permitting process under section 10 has resulted in the evaluation of 12 permit applications and the issuance of 9 permits by the National Marine Fisheries Service.

With respect to whales, this agency has initiated its own research and has encouraged and sponsored research of others.

This agency's enforcement actions have primarily involved illegal trafficking in scrimshaw made from whalebone and whale teeth, and in sea turtle parts and products which are trafficked as sea turtle

jewelry and curios. Several investigations are underway involving sperm whale oil and spermaceti and products composed in part of sperm whale oil and spermaceti, which, although legally held prior to the effective date of the act have been sold and shipped in interstate commerce in violation of the law as it presently exists.

The National Marine Fisheries Service has expended an estimated 10 man-years of effort in reviewing information on the Atlantic bluefin tuna, the Hawaiian monk seal, and the green, loggerhead, and Pacific ridley sea turtles for possible listing under the Act.

On April 22, 1975, we and the U.S. Fish and Wildlife Service jointly published a notice in the Federal Register to inform the public that critical habitat areas will be declared where appropriate, for species listed pursuant to the Endangered Species Act of 1973.

Additionally, the National Marine Fisheries Service and U.S. Fish and Wildlife Service have finalized guidelines with respect to section 7 of the act for use by all Federal agencies, so that those agencies may avoid actions which might jeopardize endangered or threatened species or which might destroy or modify critical habitat of such species; and, so that they may use their authorities, where possible, in the furtherance of the purposes of the act.

On May 20, 1975, the two agencies proposed, in the Federal Register, to list the green, loggerhead, and Pacific ridley sea turtles as threatened, and they also published proposed regulations for managing these species.

On February 6, 1976, the National Marine Fisheries Service published a draft environmental impact statement and, on February 25 and 26, 1976, held a public hearing on the aforementioned three species of sea turtles. Final regulations will be promulgated if an affirmative decision is made to list any of these species. The leatherback, hawksbill, and Atlantic ridley sea turtles were previously listed and are now protected as endangered species.

With respect to the budget, the NOAA reprogramed $130,000 in fiscal year 1974 on a one-time basis to initiate an endangered species program. In 1975, on a one-time basis, $350,000 was reprogramed for research on the status of Atlantic bluefin tuna. In addition, $30,000 was reprogramed for the administration of the act.

In fiscal year 1976, $400,000 was appropriated; $100,000 of this is being used for administration to develop regulations, review permit applications, review State-Federal cooperative agreement applications, and administer the program generally. One hundred and fifty thousand dollars is being used to enforce the provision of the act. The remaining $150,000 is being used for research to investigate the population status and trends of sea turtles, the Hawaiian monk seal, Guadulupe fur seal, northern elephant seal, and the Atlantic sturgeon.

The program presently includes a program administrator, a program specialist, a secretary and six law enforcement agents. Others within the agency who assist in implementing the act, include administration, law enforcement, research and general counsel staff personnel.

Law enforcement capability, as I mentioned earlier, has been enhanced this year with the additional $150,000 and six agents. We acquired additional responsibilities under the recently implemented Convention on International Trade in Endangered Species of Wild Fauna and Flora and this is expected to increase our need for enforcement capability.

Passage of S. 2334, an administration bill which would extend for 2 years the authorization for general appropriations to the Department of Commerce, is crucial to the continuation of our program for the conservation of endangered or threatened species. It would extend the authorization for general appropriations to the Department under section 15(B) of the Endangered Species Act of 1973, in the amount of $2 million per year for the fiscal years 1977 and 1978.

Authorization for financial assistance grants to States under section 6 of the Endangered Species Act of 1973 expires at the end of fiscal year 1977. The Administration has not requested an extension of this authorization. Instead the Administration encourages each State to use funds available through existing Federal programs (which provide funds to States on a matching grant basis) for restoring endangered or threatened fish and wildlife resources. For example, approximately $110 million is available to the States from the Department of the Interior's U.S. Fish and Wildlife Service Federal aid programs.

Specific costs are exceedingly difficult to estimate, but the level of appropriation authorizations in S. 2334 is believed to be adequate for this agency. However, at oversight hearings before the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Merchant Marine and Fisheries Committee, in 1974 and 1975, we indicated that much more needed to be done, and that substantial funding over an extended period of time would therefore be required. The extension of appropriation authorizations to the Department of Commerce as contained in S. 2334 is thus of the utmost importance if we are to carry out the intent of Congress.

I would like now to address Senate-passed and House-passed S. 229 and the need for certain exemptions from the act's prohibitions. These exemptions relate, among other things, to pre-act scrimshaw, raw materials for scrimshaw, sperm whale oil, and captive-bred endangered species.

Senate-passed S. 229 exempts scrimshaw which was held lawfully within the United States on the effective date of the act from the prohibitions concerning interstate and foreign commerce for a period of 2 years on the wholesale level and 7 years on the retail level.

House-passed S. 229 also exempts scrimshaw, but in addition exempts sperm whale oil that was likewise legally held within the United States on the effective date of the act. This, then, would include not only the approximately 23,400,000 pounds of sperm whale oil which has been held in the national stockpile, but would also include stockpiles held by various private industries amounting to several millions of pounds. The combined exemption provided for by the House bill is limited to a period of 3 years.

In our view, a basic issue common to both of these proposed amendments to the act is whether the exemption involved would create any danger that additional endangered animals might be taken. It is our judgment that no additional endangered animals would be taken as a result of these amendments. Hence we see no objection to allowing lawful holders to use up their stocks, particulary in view of the measures of control provided by S. 229.

The measures of control which the Department considers adequate were set forth in our letter of March 20, 1975, to this committee on S. 229 as originally introduced. In that letter, we urged that the bill

be expanded to authorize the Secretary of Commerce to prescribe regulations relating to registering of inventories, keeping sales records, and permitting inspection of inventories and records. We also suggested expanding S. 229 to include all parts and products of cetaceans which were legally acquired and being held at the time the act became effective. Senate-passed S. 229 authorizes the Secretary to require registration of inventories and submission of records and authorizes regulations for other measures of control.

On June 10, 1975, we testified, at House hearings, in favor of Senate-passed S. 229, but express certain reservations based on the fact that the bill exempted only scrimshaw and not whale oil. At that time, we also testified regarding H.R. 3465, a bill which exempted stocks of whale oil held in the national stockpile, but did not deal with additional stocks which have been legally held domestically. Subsequently, H.R. 10229 was introduced, amended, and passed by the House, as House-passed S. 229.

We wish to express our preference for the administration's proposal that equitably relieves the financial burden suffered by all holders of legally obtained endangered species parts and products, not just those holding sperm whale oil and scrimshaw. In the absence of congressional action on the administration proposal, we would prefer the House-passed S. 229 to the Senate bill or the earlier House bill, H.R. 3465.

To exempt Government-held sperm whale oil without exempting privately held sperm whale oil, or one stockpile as opposed to another, would be inequitable and would create enforcement difficulties. This is why we supported legislation to equitably treat all holders of legally obtained parts and products.

Although, as we have stated, we are in favor of the House-passed S. 229, we wish to point out certain concerns with respect to enforcement. First, as a result of several ongoing investigations, it is our understanding that large quantities of whale oil which have been held since the effective date of the act have been sold and shipped commercially in violation of the law as it now exists. We intend to continue our investigations and, if warranted, initiate appropriate action under the law until the present law is amended.

Second, while our enforcement efforts under the Endangered Species Act as written have been hampered in the past by a lack of funding, we have, nonetheless, made significant efforts in the enforcement area. Should the House-passed S. 229 become law, the increased responsibility for preparing for and enforcing regulations promulgated to implement the amendment would require additional emphasis to assure that trade is limited to preact products.

Lastly, the committee has asked that we address the need for an exemption from the prohibitions of the Act for captive-bred endangered species, when breeding stocks were legally held prior to the effective date of the act. Of the presently listed endangered species under our jurisdiction, that is, eight large whales, the Mediterranean monk seal, three species of sea turtles and the shortnose sturgeon, only sea turtles are known to have been kept alive in captivity for any period of time, and for these species we are not aware of any progeny from captive-bred animals. Although it is not presently a problem to us, it could be in the future. Because of the experience of

the U.S. Fish and Wildlife Service with respect to this problem, we would defer addressing this matter to that agency for those captive-bred species under its jurisdiction.

Mr. Chairman, this concludes my prepared statement. I will be pleased to answer any questions you may have.

Senator FORD. I thank you very much, Jack.

In your testimony you indicated that the level of appropriation contained in S. 2334 is adequate. Would an authorization of $2 million a year permit you to carry out all of your responsibilities under the Endangered Species Act?

Mr. GEHRINGER. I think that has been stated before. If we were to probably do everything that could possibly be done, the answer is no.

But what we can reasonably expect to do, the answer is yes.

Senator FORD. What would be your estimate then of the cost of implementing the act to its fullest extent?

Mr. GEHRINGER. We are talking severalfold of the present $2 million.

If we were to do everything we envision that is possible under the act, we are talking severalfold increase of the $2 million authorization.

Senator FORD. Two, three, four, five; you keep nodding your head like you're bidding.

Mr. GEHRINGER. Twofold would be $4 million or more.

Senator FORD. So we are talking in terms of $5 million.

Mr. GEHRINGER. It could.

Senator FORD. Chairman Magnuson asked me to pose several questions to you on his behalf. I think maybe you touched on some of these, but we want to get into more detail. Generally describe NMFS enforcement activities with regard to acts involving sperm whale oil prohibited by paragraphs, 1(a), 1(e), or 1(f), of section 9(a) of the Endangered Species Act.

And I hope that you are in a position to answer that.

Mr. GEHRINGER. Yes, sir, the Endangered Species Act named the Departments of Commerce and Interior as the primary agencies. For the Department of Commerce that was subsequently delegated to the NOAA and subsequently down to the National Marine Fishery Service, which we represent.

Now, in the absence of funds and staff positions appropriated to this agency prior to current 1976, we nevertheless attempted to maintain some degree of enforcement activity.

For the most part, our enforcement posture was limited to respond to specific complaints of alleged violation, most of which involved importation of personal items derived from endangered species.

Now during the spring of 1974, as a result of public complaint, we initiated preliminary investigation into allegations of interstate trafficking in sperm whale oil.

This investigation led to the discovery of the GSA sperm oil sale in September 1974. We requested a legal opinion from the Attorney General's office concerning the legality of the GSA sale.

In December 1974, the Attorney General's office ruled that the GSA sales were in violation of the Endangered Species Act.

Now, because of the doubtfulness of this situation prior to the Attorney General's position, we voluntarily withheld filing any charges

for acts arising out of the GSA sales, and anything occurring prior to January 1, 1975.

In June 1975, allegations of widespread interstate trafficking in sperm whale oil was continuing unabated were made before the House Subcommittee on Fisheries and Wildlife Conservation and Environment and of the Committee on Merchant Marine and Fisheries.

As a result, we reopened our investigation, but because of a lack of funding and manpower we were able to do little in the way of a full-scale investigation.

Subsequently, in the fall of 1975, we received some funding and manpower which enabled us to proceed more rapidly in these investigations.

Now, as a result of these investigations we have opened approximately 253 cases, five of which may call for criminal penalties in all, involve sperm whale or spermacetic.

We will be glad to elaborate on any point that we may have missed.

Senator FORD. Please provide a general analysis of how many violations involved or called for civil penalties under the act and how many have involved or called for criminal penalties.

Mr. GEHRINGER. Yes, sir.

In 1974, there were 31 civil cases and no criminal cases. In 1975, 297 civil cases and no criminal cases.

I offer to go back and check the very beginning of the answer. I am continuing.

In 1976, 400 civil cases and five criminal cases; of those 400 cases, 285 cases are now under investigation.

All of the five criminal cases are all still under investigation.

Senator FORD. Should the companies which may have committed acts in violation of the act be eligible for exemption under H.R. 10229?

Mr. GEHRINGER. Our view of that is, yes.

The granting or withholding of an exemption is not viewed as an additional sanction under the act.

If a company has committed a violation and we know of it, the company either will sanction or it will be sanctioned.

There is little reason, in our opinion, to assess in effect what would be a double penalty.

Senator FORD. Would H.R. 10229 exonerate or immunize from prosecution any person for past violations of the Endangered Species Act?

Mr. GEHRINGER. Our answer to this is that it does not specifically address the issue of whether it applies retroactively to past activities which are in violation of the prohibitions that are set forth in section 9 of the Endangered Species Act of 1973.

Our position is that we would argue in implementing the bill if enacted that it applies prospectively only—that is individuals are not immunized from prosecution for any past violations.

Now, as a matter of fairness, past violations should be treated equally. It has been our policy that when illegal activities are detected, then appropriate sanctions ensue.

We wish to maintain the opportunity to continue this policy in an evenhanded manner in respect to past violations.

In the commercial sector, those who may have by ignoring the law obtained an unfair market advantage and thus profited when others chose to abide by the law and not sell endangered species or products that are illegal should be brought to task. To ignore such transgressions would be unfair.

Senator FORD. If the committee were to consider changes in H.R. 10229, do you have any recommendations as to suggested language?

For example, should enforcement activity be clearly preserved, whether completed or underway as to sperm whale oil during the period of—what is it December 28, 1973, to the present?

If so, should this apply to criminal violations only, or should it apply to civil violations as well?

Mr. GEHRINGER. Yes, Mr. Chairman, we do have a suggested change.

As noted above, it is not that clear that H.R. 10229, if enacted, would have only prospective effect—or in order to tie this matter down, we would suggest the following change.

Section 6. Nothing contained herein shall make legal any activity which prior to the effective date of the act was prohibited by the Endangered Species Act of 1973.

Senator FORD. Let me ask you this question of my own.

Am I correct in reading in preparing myself for today, that the Government sold sperm whale oil either at bid or on a negotiated basis, and after the Government sold the sperm whale oil to a private enterprise, then another act came behind it, and eliminated the sale of that oil in interstate or international commerce, and those who purchased from the Government were then excluded from selling what they purchased from the Government. Am I correct in making that assumption?

Mr. GEHRINGER. Yes, sir.

Senator FORD. Did I understand you in your statement, that you had 26-million-plus pounds in storage?

Mr. GEHRINGER. There is 23.4 million pounds.

Senator FORD. 23.4 million?

Mr. GEHRINGER. Roughly.

Senator FORD. Give or take a pound that is a lot of oil.

Am I to understand from reading the report that they are stored in special-sized drums? I mean that they are not in regular 55-gallon drums? Are they stored in special drums of a special size?

Mr. GEHRINGER. Sir, we do not have that specific knowledge. But I understand the GSA people are here to testify and would be able to provide that.

Senator FORD. We will get that information from GSA.

How much damage would you say has been created for private enterprise who has purchased this oil and then is trying to comply with the law? Maybe they borrowed money to make the purchase and expected the flow of commerce to bring back a reasonable profit, and now the Government changes its mind, and they are now in the problem of going down the drain as an employer.

Mr. GEHRINGER. Sir, if I may take a tack: this considering five investigations, underway at the present time.

Senator FORD. Are the investigations of companies who have purchased from the Government?

Mr. GEHRINGER. There is a value of $2.5 million in whale oil. In spermaceti, considerably less.

Senator FORD. But we are talking about a tremendous amount of private investment and private activity?

Mr. GEHRINGER. Yes, sir.

Senator FORD. Now, am I in the ball park with your thinking that if we allow this sale now to go forward and the exemptions are made without giving up what you might have under investigation as far as civil or criminal prosecution might be concerned that you do have the ability or propose a method whereby you could assure yourselves and the general public that we are not having other endangered species captured and brought into the market through unlawful or illegal procedure?

Mr. GEHRINGER. Yes.

Senator FORD. So, what you are saying to me then is that stocks that have accumulated prior to the Act—say prior to December 28, 1973, that really it is sitting there and it cannot be used as it was expected to be used when it was purchased from the Government with the expectation to use that and make a profit. That we can go ahead and let them use that until it depletes the supply and you feel reasonably confident that beyond that point they would have to make synthetic or use the oil for other scrimshaw products or whatever it might be, that you could supervise that operation very well?

Mr. GEHRINGER. Yes, we feel that if the provisions were controlled or adequate——

Senator FORD. To assure the public that the provisions would be met?

Mr. GEHRINGER. Yes, sir.

Senator FORD. It seems to me that we ought to do it. Now am I in the right direction, that we should take the House version of S. 229 plus the language that you just offered this morning?

Mr. GEHRINGER. Yes. We have this modification here.

Senator FORD. I will have no further questions of you, unless you have some comments.

We appreciate your attendance this morning and your frankness.

Mr. GEHRINGER. Thank you.

Senator FORD. I would like to talk to at this time Louis Brooks about some of these problems.

Louis Brooks is the Acting Assistant Director for Stockpile Disposal of the GSA.

STATEMENT OF LOUIS BROOKS, ACTING ASSISTANT DIRECTOR FOR STOCKPILE DISPOSAL, FEDERAL PREPAREDNESS AGENCY, GENERAL SERVICES ADMINISTRATION; ACCOMPANIED BY RICHARD MARILLEY, OFFICE OF GENERAL COUNSEL; AND GEORGE JAMESON, STOCKPILE DISPOSAL DIVISION

Mr. BROOKS. Thank you, Mr. Chairman.

I have with me also Mr. Richard Marilley of the Office of General Counsel, who is on my left, and Mr. George Jameson of the Stockpile Disposal Division, both of GSA.

On behalf of Mr. Jack Eckerd, the Administrator of GSA, I want to thank you for the opportunity to appear before your committee.

One of the many responsibilities of GSA is the maintenance and control of the Strategic and Critical Materials Stockpile. Among the commodities in the stockpile is sperm whale oil. During the period from 1948 to 1952, approximately 23 million pounds of sperm whale oil were acquired for stockpile purposes because it was a lubricant deemed essential for civilian and defense-related industries.

Mr. Chairman, we have attached for the record some of the varied uses of sperm whale oil.

In September 1972, the Office of Emergency Preparedness determined that sperm whale oil was no longer needed for stockpile purposes because of the availability of substitute materials and requested GSA to draft a plan of disposal for the oil. Thereafter, GSA, pursuant to the requirements of 3(e) of the Strategic and Critical Materials Stockpiling Act, published notice of the proposed disposition of the sperm whale oil in the Federal Register on January 9, 1973. Following the required statutory period of 6 months, the sperm whale oil was offered for sale, and two contracts were entered into, one with Werner G. Smith, Inc., on January 31, 1974, for 16,209,774 pounds of sperm whale oil; and the other with Scandinavian Oil Co., Inc., on December 27, 1973, for 7,174,533 pounds. On December 28, 1973, the Endangered Species Act became law, however, and commerce in endangered species, and parts and products of such species, including sperm whale oil, was banned.

On December 19, 1974, GSA received an opinion from the Assistant Attorney General, Office of Legal Counsel, Department of Justice, that the disposal of sperm whale oil was subject to the Endangered Species Act Amendments of 1973. GSA had delivered 6,482,908 pounds of sperm whale oil under the Werner G. Smith, Inc., contract, and 2,162,160 pounds under the Scandinavian Oil Co., Inc., contract. GSA has since suspended all deliveries of oil under these contracts pending resolution of the problem. The value of the 15 million pounds remaining in the stockpile is approximately $2.7 million.

S. 229, as passed by the House, authorizes the Secretary of Commerce to permit exemptions from the Endangered Species Act for the sale and transportation of pre-act, legally obtained, endangered species parts in interstate and foreign commerce. This includes sperm whale oil.

The original draft bill proposed by the administration would have provided for a strong system of safeguards against abuse, while also permitting the Secretary to establish exemptions regarding inventories of legally obtained endangered species parts and products, considering the nature and size of each inventory. The House-passed version of S. 299, however, places a mandatory 3-year limitation on exemptions for sperm oil. We estimate that at least 6 years would be needed by the companies to dispose of the inventory of sperm oil. Therefore, we recommend that the Secretary of Commerce be given the authority to prescribe the time limit of exemptions on the basis of need, rather than establishing an arbitrary deadline in the bill, which may or may not solve the problem.

We ask, therefore, that section 10(f)(4)(C) of section 2 of the bill be amended by deleting everything between the word "effect" and the semicolon.

Mr. Chairman, at this point I would like to include an additional recommendation not in my prepared statement.

Further, we ask that the bill provide for the ratification of the GSA contracts with Werner G. Smith, Inc., and the Scandinavian Oil Co., Inc.

This amendment would remove the uncertainty of the effect of legislation on the contracts.

We have drafted a new section 6, which we recommend be added to S. 229, that provides for the ratification of the GSA contracts as follows:

Sec. 6. Any contracts entered into by the Administrator of General Services before the date of the enactment of this Act for the sale of pre-Act endangered species part, as that term is defined in Section 2, and which is the subject of the notice published in the *Federal Register* on January 9, 1973 (36 F.R. 1157) shall be effective as of the date such contracts were entered into and such contracts shall be deemed to be in full force and effect.

Mr. Chairman, this concludes my statement. I will be pleased to respond to any questions that you may have.

Senator FORD. Thank you very much.

I think we are getting into an area here where the Government has allowed industry, private industry, to purchase, and then turns around and excludes them from the sale of what they have purchased from the Federal Government. And I don't want to belabor it too long because Mr. Gehringer, I think, got into this area.

Now, do I understand you in your testimony that you follow all regulations, all procedures, to the letter of the law before any purchase was allowed of the sperm whale oil?

Mr. BROOKS. We certainly did, Mr. Chairman, as we understood the law.

Senator FORD. At that time, you followed all of those procedures properly?

Mr. BROOKS. Yes, sir.

Senator FORD. And the companies purchased in good faith, and you sold in good faith?

Mr. BROOKS. Very much so, yes, sir.

Senator FORD. Now you say there are 16 million pounds of this oil in reserve that can be sold; is that correct?

Mr. BROOKS. It is in reserve in that it has not yet been delivered to the companies. The entire stockpile has been sold, divided between the two companies, Werner G. Smith and Scandinavian Oil.

However, before we completed our deliveries they were suspended when the Attorney General's opinion——

Senator FORD. You had delivered a portion of this?

Mr. BROOKS. We had delivered a portion, yes, sir.

Senator FORD. Now, the testimony by the Commerce Department indicated there were 22½ or 23 million pounds still in storage.

Mr. BROOKS. That is incorrect. 23.4 million pounds was the original Government inventory, which was sold to the two companies. Of that amount, we had delivered about 2 million pounds to the Scandinavian Co.; we owe them another 5 million. And on the Werner G. Smith contract, we have delivered about 6.4 million, and we owe them about 9.8 million pounds.

Senator FORD. You say the Smith Co. is an American company?

Mr. BROOKS. Sir, may I interrupt?

Both companies are American corporations. The name happens to be "Scandinavian."

Senator FORD. Thank you.

Let's say the Smith Co. That's an easy name for me to pronounce. You have delivered several million pounds. Are they holding this in their stockpile? Have they paid for it?

Mr. BROOKS. The amount that we have delivered to them has been paid for. The amount we have held back and not yet delivered is not yet paid for.

Senator FORD. Could this company have—and I am asking just hypothetical questions, and I don't know anything about the company—could this company after it was awarded the contract then enter into other contracts for delivery?

Mr. BROOKS. For resale? Yes, sir.

Senator FORD. Do you have knowledge that they have?

Mr. BROOKS. Yes, we do have knowledge, at least in part, that some of the material has been resold.

Senator FORD. OK. How much of the original delivery is now being held in storage by Smith Co.?

Do you have any idea?

Would you say that have some in storage that they have paid for that they cannot be reimbursed for through normal commerce?

Mr. BROOKS. Yes, there is no question of that, and I think representatives of the two companies are here who can give you the exact amounts.

Senator FORD. Are they being hurt financially, in your opinion, by what we have done?

Mr. BROOKS. I think they are being very seriously hurt, yes, sir, because they have made an investment in the purchase of oil from the Government which they are prohibited from using or selling or obtaining the proceeds of sale. And it is costing them storage and expenses while they are forced to hold the oil.

Senator FORD. This oil is contained in a peculiar-size drum is it not?

A 55-gallon barrel or something like that. In Kentucky we'd know how many gallons of whiskey there are but——

Mr. BROOKS. These are generally about 400-pound drums. One company bought all of the material in drum form, and the other company bought the bulk material.

Senator FORD. OK.

If Congress does not pass the type of exemptions that have been recommended, how will GSA dispose of its inventory of sperm whale oil?

Mr. BROOKS. If the proposed legislation is not passed, my understanding is we would be prohibited then from any disposal as long as it is maintained that we are subject to the other provisions of the Endangered Species Act.

Senator FORD. Do you have any use for it?

Mr. BROOKS. The Government has no use for the oil.

Senator FORD. What is it costing you to retain it?

Mr. BROOKS. Well, the storage expenses are running on the order of about $28,000 to $38,000 per year depending upon the quantity actually held.

Senator FORD. So we are doing two things. We have no use for the oil, and it's costing us up to $38,000 a year for storage.

Mr. BROOKS. Yes, sir.

Senator FORD. Second, we have sold it to private enterprise, and then prohibit them from the resale.

Mr. BROOKS. Exactly.

Senator FORD. And they, in all probability, borrowed some money—or should we say "made financial arrangements"—to make the purchase and then to recontract, and now they cannot fulfill either one of them. They cannot get the money back because they cannot sell. And they are probably paying storage, too, aren't they?

Mr. BROOKS. Indeed, they are. And this is a most frustrating situation.

Senator FORD. I tell you, that's the reason the general public is frustrated with the Government today, just this type of action. And I'm not blaming you. I'm not blaming you at all, because, apparently, you have done your job and done it well.

But this is exactly why we are having frustration with the Federal Govenment today.

And you say it would take at least 6 years instead of 3—did I understand your statement correctly?—would be needed by companies to dispose of the inventory of the sperm whale oil.

Mr. BROOKS. Yes, sir.

Senator FORD. Did the terms of your contract with these companies specifically call for delivery of the sperm whale oil over a 6-year period?

Mr. BROOKS. Yes, sir, they did.

And, of course, that period has been interrupted since the time the contracts were made.

Senator FORD. If Congress passes an exemption of legislation which provided for a 3-year rather than a 6-year disposal period, would this cause problems for GSA in terms of failure to comply with the terms of the contract?

Mr. BROOKS. It might very well. That is a risk, we think which would likely occur. And we think that is a dangerously short period. This is why we recommend an open ended period which the Secretary of Commerce could determine, depending on the needs of the situation.

Senator FORD. It has been recommended, I think—or it has been proposed that an alternative to the interstate trade of sperm whale oil in the United States, that the substance be sold overseas.

What is your reaction to that?

Mr. BROOKS. We have looked into that possibility. There are several points I would make.

One is that we would undoubtedly sustain a very severe financial loss for the Government in selling overseas because of the additional costs of transportation and the lower foreign market prices.

Second, it would present a severe problem with respect to the status of our contracts with the two companies who did buy the oil. That is, the legality and enforceability of those contracts.

We think as a matter, at least, of moral and ethical right, that these companies are entitled to fulfillment of the contracts they made with the Government, and we have an obligation to perform against those contracts.

Senator FORD. Well, let me ask you a final question.

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Did GSA unknowingly, or, say, illegally deliver the oil to *the* companies under the act?

Mr. BROOKS. Certainly not knowingly.

The Attorney General, of course, took the position in late 1974 that deliveries under the contracts were in violation of the Endangered Species Act. And it was at that point which led us to suspend further deliveries so we would not be knowingly in violation of the law. Prior to that time, any deliveries were certainly without knowledge on our part of any violation.

Senator FORD. You weren't aware of the passage of the act at the time you made delivery of the oil?

Mr. BROOKS. Let me ask our Counsel, Mr. Marilley, to answer that question.

Mr. MARILLEY. At the time we entered into the contracts, we were unaware of the passage of the act.

However, after the contracts were entered into, we were aware of the act. At that time we concluded that we were exempt from the terms of the act on the basis that we did not hold the oil in a commercial activity.

Senator FORD. Well, I am not a lawyer, and I would like to have the company's case.

The Government gives it to you and then you take it away and then you have got to hold it again. I would like to have that side.

But if you delivered the oil illegally—let me ask you this sort of question—would they have to pay for it, an illegal delivery?

Mr. MARILLEY. Well, I think we would have to take it back in any event.

Senator FORD. Well, that would cost us more money, wouldn't it, the delivery, going back and getting and putting it in storage at up to $38,000 a year?

Mr. MARILLEY. That is correct.

Senator FORD. It is getting quite interesting, isn't it? I did not know whale oil could get so interesting. We don't have many of them going down the Ohio River, you know.

I have no further questions. I think I've got my mind made up about what we ought to do. Now, how we get there, I'm not quite sure.

With your statement and the Commerce Department's statement as to their ability to scrutinize the law to be sure that it is properly handled, and your good faith operation and the good faith operation of those companies, we can get into a posture where we can correct this situation.

I thank all three of you for being here.

We would like to now hear from Karol Newman, Mr. Meckes, and Mr. Bistritzky.

STATEMENTS OF KAROL LYN NEWMAN, COVINGTON AND BURLING; WALDEMAR MECKES, PRESIDENT, WERNER G. SMITH, INC.; AND A. S. BISTRITZKY, PRESIDENT, SCANDINAVIAN OIL COMPANY, INC.

Ms. NEWMAN. Mr. Chairman, I appreciate the opportunity to be here today on behalf of the Archer Daniels Midland Co. in support of H.R. 10229—the House-passed version of S. 229.

Archer Daniels Midland Co. (ADM) is a private company which currently holds approximately 8 million pounds of legally acquired sperm whale oil which, because of what we consider to be a congressional oversight in the passage of the Endangered Species Act of 1973, cannot be disposed of.

ADM's oil was imported under U.S. Department of the Interior permits issued pursuant to the Endangered Species Conservation Act of 1969. We are not one of the purchasers of the GSA's sperm whale oil stockpiles. However, we did import our oil under U.S. Government permits. We consider ourselves to be caught in what Congressman Gude aptly described in the hearings before the House Subcommittee on Fish, Wildlife, Conservation and the Environment, as a governmental catch-22.

This is an appropriate description of ADM's situation. The Government granted ADM import permits to bring the sperm whale oil into the United States. Once imported, the Government agencies charged with the enforcement of the act told us we could not sell our legally imported sperm whale oil. The failure of Congress to clarify that it did not intend to have such prohibitions apply to legally imported goods resulted in ADM's loss of substantial amounts of money.

Senator FORD. What substantial amount? Can you give me a ball park figure?

Ms. NEWMAN. Well, as noted in my statement, we are not concerned only with the cost of the oil; we are dealing with importation duties; lost interest on money; administrative costs, and the storage costs, insurance, et cetera.

Storage costs are costing the Archer Daniels Midland Co. in the neighborhood of $96,000 per year. This is substantially higher than Government costs. The total loss to the company is somewhere in the neighborhood of $3 million.

Senator FORD. Thank you. You may proceed.

Ms. NEWMAN. We feel that the oversight hearings held in the House were prompted by the same concerns which are being expressed to this committee today, and that is the need to take care of a congressional oversight which has resulted in the Government grant of right to an industry and then the revocation of that right.

We also believe that there is a need to make this act—that is, the Endangered Species Act of 1973—consistent with the Marine Mammal Protection Act of 1972.

That act provides for a grandfather clause. The 1973 act does not. Both address the same marine mammals.

H.R. 10229, as I will refer to it, is long overdue. The financial hardship on ADM and other companies similarly situated is severe. As I pointed out, we are not just concerned with the cost of the oil, we are also faced with the loss of transportation costs, import duties and profit which the oil would bring as well as storage costs. H.R. 10229 would lessen the financial burden on ADM by allowing it to sell its legally acquired stocks of sperm whale oil for a limited period of time.

We would, however, suggest that some clarifying language be added to H.R. 10229 simply to explain and to expressly state that sperm whale oil or derivatives therefrom are covered by the exemption. This would avoid any further confusion arising out of or overly literal interpretations of the statute.

We would also like to comment briefly on the proposed Department of Commerce language which I heard for the first time this morning. We are adamantly opposed to such language. We must take that position in light of the fact that any passage of language to that effect would negate the entire purpose for these proposed amendments.

Companies would be subject to penalties which may well exceed the value of their goods for what is a congressional oversight, or, in addition to that, they may be subject to forfeiture under either civil or criminal provisions for which they would have nothing for which to ask for a permit for. We must oppose that.

We are pleased the subcommittee is considering H.R. 10229, and we urge that the committee report out the bill favorably.

Senator FORD. And would you other gentleman like to make your statement? And then I could probably pose some general questions to all three of you.

Mr. BISTRITZKY. Yes, Mr. Chairman. I wish to thank you for giving me the opportunity to testify today regarding the sperm oil held by GSA.

Scandanavian Oil Co. has an interest in today's hearings, as they are one of the two companies who purchased sperm oil by contract from the Government stockpile.

In 1972 sperm oil was removed from the list of strategic and critical materials and GSA was asked to dispose of the oil. Notice of this proposed disposal was published in the Federal Register on January 9, 1973, and given to Congress. Negotiations under "Solicitation of Offers', 'Oil-I' " started about 10 months thereafter. Offers of purchase by Scandinavian Oil Co. were culminated by telegraphic agreement on December 7, 1973. This was followed by a contract entered into in good faith, which was signed by the GSA on December 27, 1973: to sell to Scandinavian Oil Co. about 7,175,000 pounds.

Never at any time during negotiations or at any time thereafter was Scandinavian Oil Co. ever told, or ever hinted to, that the sale of sperm oil, its removal, or delivery might be contrary to law.

All went well. Shipments were made regularly to the satisfaction of the GSA and Scandinavian Oil Co. until December 1974. Then, without prior or proper notice, the supply was suddenly cut off. We had three tankcars at the depot waiting to be loaded when the call came through advising us of the refusal to load. We were left "holding the bag," trying to explain to our customers that due to our plight they in turn would not be able to meet their obligations. This sudden cut off was caused by order of the Department of Commerce under advisement by the Department of Justice.

As soon as we purchased the sperm oil from the Government stockpile we entered into long-term contracts with some of our customers. We were under the impression that the validity of a Government contract was not to be questioned. In fact, it is interesting to note that the GSA contract contains a default clause concerning only the buyer and not the Government. Our sudden inability to deliver sperm oil has had its effect also on the sale of other oils that these same customers use. If a buyer has a factory with a staff, expenditures and payroll to meet, he is not interested in "force majeure"; He only knows that Scandinavian Oil Co., having a reputation of integrity and expertise for over five decades, suddenly did not live up to its commitments.

This has had an adverse effect upon our company's business, as well as on our customers who were dependent upon this oil. They in turn had to find substitutes without proper research. We have all read the press release by General Motors stating that many claims have been lodged against them due to corrosion of transmissions, caused by using a substitute for sperm oil in transmission fluid, which failed to be rust proof. This resulted in a loss of millions of dollars.

S. 229, passed by the House and being considered today by this committee, serves to exempt the preact sperm oil from the Endangered Species Act of 1973. As the bill is presently structured, the exemption would be by application to the Secretary, only for a period of 3 years, thus compelling all oil to be disposed of within this period. The Government stockpile has at present in its inventory about 16 million pounds; in private hands there is an additional 8 million pounds of preact material. This gives us a total of about 24 million pounds of sperm oil.

Considering the many consumers who refuse to return to using sperm oil, as well as the resultant diminishing market, the estimated annual consumption will only be about 4 million pounds. Therefore, it would take 6 years to consume the present supply at a normal market pace. An exemption for only 3 years would force sellers to "dump" the oil in order to deplete the stock by the deadline. This would be comparable to a man who enjoys tuna fish to be compelled to consume a whole case of it in 1 day.

Mr. Chairman, I would also like to remind you that the original contract with the GSA, entered into in good faith, was for a period of 6 years, and this was at a time when the annual consumption was about 10 million pounds. Now the projected annual consumption is only 4 million pounds. If the bill is passed with only a 3-year exemption, it may constitute the "taking" by the Government without just compensation.

By passing S. 229 and allowing GSA to live up to its commitments, the Government will be disposing of unwanted, superfluous material. The U.S. Treasury will be receiving about $3 million for the oil and will be decreasing their storage costs by over $38,000 per annum.

If, however, the bill is not passed, the Government will on the one hand not have the income, and on the other hand will be burdened by continuous expenses. Eventually, at some time in the future, the Government will have to divest itself of the oil. How? Through commercial channels? Certainly by that time people in the industry will be so well set up with viable substitutes that they will never consider going back to sperm oil.

Then another way for disposal would be the burning of the oil, which would only pollute the air, or perhaps emptying it into the sea, which would pollute the waters. Neither one would bring in any revenues to the Treasury.

The Government has had this oil in storage for about 25 to 30 years. We can never help conservation of the species by not utilizing this oil, nor can we bring back to life the whales that were slaughtered 25 to 30 years ago.

I have heard some doubt and concern expressed about the difficulty of assuring that existing inventories are not comingled with illegally imported oil.

This is the most ridiculous argument. Sperm oil is not a precious stone. If there is no oil legally available, a smuggler would have to import at least 200 to 300 tons for him to make a profit. And where can one hide from Customs 200 to 300 tons? If there is sperm oil legally available, why would anyone risk importing contraband oil, which would generate only risk and no profit? I would like to reiterate that the bill presently before the committee provides for stringent regulations regarding bookkeeping, inventory reports, and inspections, thereby eliminating the feasibility of comingling with any postact material.

Mr. Chairman, I thank you for your indulgence to present to you my point of view.

Senator FORD. Would you care to make your statement, and then I will get to questions?

Mr. MECKES. My name is Waldemar Meckes, and I have submitted my statement to the chairman. I would like to have that incorporated in the record.

Senator FORD. It will be.

Mr. MECKES. And I will be able to answer any questions you have.

Senator FORD. This has turned into a real can of worms. After listening to the testimony and having an opportunity to review yours, I have an impression that you would not object to the provision contained in the House-passed version of S. 229, which requires the regulation of inventories and other measures to more effectively enforce the act. Is that correct?

Mr. MECKES. That is correct. So long as each of us has an opportunity to be extricated from the dilemma that the contradiction of laws implies.

Senator FORD. You are in the import business. I suspect that puts you in maybe a little different category.

Ms. NEWMAN. That is right, Senator. Archer Daniels Midland has absolutely no objection to the reporting requirements or any inventory inspection requirements.

Senator FORD. If Congress fails to enact some type of exemption permitting the interstate sale of sperm whale oil, what do you estimate to be the economic loss to each of your companies in terms of revenue that you would receive from marketing the oil?

I think you gave me about a $3-million-a-year figure.

Ms. NEWMAN. That is an approximate figure—taking in expenses, not just profits.

Senator FORD. And that is also loss? You could add loss on top of that, and I think some other companies would have in storage. You are talking about $96,000-a-year storage at the moment it is costing you. I understood that with Scandinavian, this is having a rippling effect.

You had a contract, and then you were supplied to your customers, who were geared up to take your oil. And now you have not only lost some of the integrity of the company, but you have created some damage to those who would purchase from you. Is that correct?

Mr. BISTRITZKY. That is correct.

Senator FORD. How about you, Mr. Meckes?

Mr. MECKES. About $3 or $4 million. We are in the same situation of owning oil we thought we had purchased legally and storing it and

had contracts which we have had to violate because we could not deliver it. So we are looking at $3 or $4 million.

Senator FORD. Per year?

Mr. MECKES. Total. We have 9 million pounds.

Senator FORD. Now, under the present situation, you have about $4 million loss?

Mr. MECKES. That is correct.

Ms. NEWMAN. I would also like to make one other comment. There are a lot of intangibles which, of course, the company cannot estimate, such as potential loss of customers, et cetera. All of these companies—and I know ADM in particular has had long-standing customers in this business, and these customers will be necessarily lost. So these are also intangible costs which we cannot estimate at this point.

Senator FORD. This was the point I am trying to make, I think it applies in broad-brush here. You failed to produce, and it was really not your fault, but your customers are going to be looking elsewhere or find substitutes. They will ask you, will the same thing happen this year after this last time?

And I can understand the rippling effect you would have over the long term.

I want to ask this question, and I think maybe you might have a different view. It has been proposed that, rather than disposing of these inventories in the United States, that companies with inventories of sperm whale oil sell their stocks abroad.

Would any of you care to comment on that?

Mr. MECKES. I will.

The European market is considerably different than the U.S. market. By that, I mean lower. The United States is facing a series of contracts that were made in good faith which they would abrogate and then abrogate it for less money, which is no profit to the Federal Government.

The oil that my firm purchased was stored in 40,000 drums. They still have about 25,000 of those drums, which is the most inefficient way of shipping it in commerce, the highest-cost way of shipping it in commerce.

You would have to get the drums from the two warehouses to an ocean port and send it overseas in a dry cargo ship, which is the highest-cost freight. They are not very likely to sell it to Japan, because they are a net exporter. They are not very likely to sell it to the Soviet Union, because they produce their own. There is 5,000 to 6,000 tons of sperm oil right now in Rotterdam unsold. That is going to be added to the market at certainly not an advantageous price.

Senator FORD. Would anybody else care to comment?

Mr. BISTRITZKY. I know, I have checked the market in Europe, and it is considerably lower. The Government would lose an enormous amount of money. In addition, it would leave itself open to lawsuit by not fulfilling their contracts.

Ms. NEWMAN. I would just like to comment that we submitted to the committee at some earlier point an estimated cost sheet, which is also attached to my written statement. And we have quoted there the estimated world market prices, and the U.S. market price, plus Archer Daniels Midland Co.'s cost in this.

I think, despite quick review of the figures, you can see there will be substantial losses. This is even not taking into account the transportation costs.

It is just not a feasible alternative. It will cost taxpayer dollars, and it would destroy private industry. It would be financially better for the company to sit on the oil than to ship it overseas.

Senator FORD. I have no further questions, unless you have some additional comments you would like to make.

I think you have been damaged in some way. We ought to find a reasonable way to get us out of this dilemma. I do not know what I can do, but I am better prepared now than I was before I came here this morning. I thought I had some idea of what your problems were.

Mr. MECKES. Mr. Chairman, there is only one other thing, that if the Government is to dispose of its stockpile, the longer it takes to cure this contradiction, the less possibility there is in business for anybody to be interested in sperm oil. The people who have been using it may be able to last for awhile, but then they are going to change their recipes and formulations and make their products meet new qualification tests. Once they have done that, it is very unlikely they would go back to using the other formulations, and the market will be irrevocably lost.

Now, once this is disposed of, people will have to come to finally changing their formulations. But at least the present stocks will give them more time to do further research, and it will get the Federal Treasury $2½ million in otherwise stalemated funds.

Senator FORD. I assure you, it is my intention to act promptly, and I hope that others will join with me.

Thank you all for coming this morning. We appreciate it very much.

[The statements follow:]

STATEMENT OF KAROL LYN NEWMAN, ESQ. COUNSEL FOR ARCHER DANIELS MIDLAND CO.

Mr. Chairman, and members of the Subcommittee, my name in Karol Lyn Newman and I am appearing before this Subcommittee on behalf of the Archer Daniels Midland Company ("ADM") is support of H.R. 10229. ADN is currently holding approximately 8 million pounds of sperm whale oil, which, because of the prohibitions of Section 9 of the Endangered Species Act of 1973, cannot be exported, sold, or transported in interstate or foreign commerce. All of ADM's oil was legally imported under United States Department of the Interior permits which carried with them the necessary implication that once imported the oil could be sold. However, despite these permits, Section 9 prohibits ADM from selling its legally-acquired goods.

ADM's predicament, and the history behind it, has already been brought to the attention of the Senate Committee on Commerce through the statement of Mr. R. E. Burket, Vice President of the Archer Daniels Midland Company, submitted for the record on March 7, 1975, when it was considering S. 229. I will not reiterate the points made by Mr. Burket in that statement but rather, will focus on two specific matters: (1) the need for equal treatment of persons adversely affected by the inconsistency between the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973 and (2) the proposal that any legislative relief granted to holders of legitimate sperm whale oil be restricted to an exemption from the exportation prohibitions of the Endangered Species Act of 1973. We respectfully request, however, that Mr. Burket's statement of March 7, 1975, be made a part of the record of these hearings.

I. THE NEED FOR EQUAL TREATMENT OF PERSONS HOLDING PARTS OR PRODUCTS OF MARINE MAMMALS

As this Subcommittee is aware, holders of whale parts or products have been seriously affected by the inconsistency between the Marine Mammal Protection Act and the 1973 Endangered Species Act. Both laws apply to marine mammals and place restrictions on persons dealing in or using parts or products of marine mammals. The Marine Mammal Protection Act authorizes holders of whale

teeth, bone, and oil acquired prior to December 21, 1972, to sell these products in crude or finished form in interstate commerce. The Endangered Species Act, on the other hand, prohibits such sale. Congress must take remedial action. In taking such action, however, it should not select one product of a marine mammal and grant it an exemption from the prohibitions of Section 9 of the Endangered Species Act to the exclusion of other parts or products of the same marine mammal. This is exactly what the Subcommittee will be doing if it does not recommend passage of the House version of S. 229 (hereinafter referred to as H.R. 10229). The scrimshankers, ADM, the Federal Government, and others, are all "caught up in a governmental Catch 22." [1] The oil held by ADM was brought into the United States under specific U.S. Department of the Interior permits. Once ADM received the permits, paid the transportation costs, and imported the oil, it was told that the oil could not be sold. The impact on ADM is severe. It is not only losing the cost of the oil, the transportation expenses, the import duties, and the profit which the sale of this product would bring at the current market price, but is also being forced to incur storage expenses in the neighborhood of $96,000 per year. This Subcommittee must determine whether, in light of the inequities worked upon both holders of sperm whale oil and holders of whale bone and teeth, it will recommend passage of H.R. 10229.

There are certain problems inherent in any legislation which would allow scrimshaw, but not whale oil to be sold in interstate commerce. Such legislation would grant an exemption from certain prohibitions of the Endangered Species Act of 1973 to scrimshanders but would not extend that protection to holders of whale oil. Such inequitable treatment cannot be justified unless the characteristics which distinguish one classification from another bear a rational relationship to the reasons for which the particular legislation was enacted. There is no rational basis for allowing whale bone and whale teeth to be sold in interstate commerce while prohibiting the interstate sale of whale oil.

If the basis for the proposed legislation respecting scrimshaw is the need for consistency between the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973 then there would be a rational basis for exempting legally-held scrimshaw. In that case, however, there would be no reason for excluding sperm whale oil and its by-products from such an exemption.

If, on the other hand, the reason for the proposed scrimshaw is that scrimshaw is an art form, that reasoning cannot withstand constitutional attack since whether something is or is not an object of art is unrelated to the purposes for which the Endangered Species Act was enacted. The statute was enacted to preserve existing stocks of endangered and threatened species of wildlife and to conserve the ecosystems upon which they depend. It creates no exemption for parts or products of endangered species utilized in art forms. Further, it should be noted that if this rationale is applied there can be no rational basis for distinguishing between scrimshaw as an art form and the many and varied forms of art created from the parts of other endangered species such as the shell of the hawksbill turtle.

Indeed, the argument that the Senate version of S. 229 is more acceptable because it exempts scrimshaw as an art form has never been seriously argued by environmentalists. Rather, environmentalist opposition to the original House version of the proposed amendment, H.R. 2057, centered on its lack of adequate enforcement measures. Indeed, Mrs. Christine Stevens, Secretary of the Society for Animal Protective Legislation explained the Society's position on such remedial legislation in her testimony before the House Subcommittee on Fish, Wildlife Conservation and the Environment in June of 1975. In addressing herself to S. 229 and H.R. 2057 Mrs. Stevens stated that the Society was "deeply concerned over smuggling and profiteering in whale parts and products which leads to further killing of whales." While opposing H.R. 2057, she endorsed S. 229 by stating that the Society did not oppose the Senate-passed S. 229 because "even though it does not assuage our concern over the likelihood of attempted smuggling, it would go a long way, if strictly enforced, to prevent development of a market in our country for commercial whalers."

The Society's lack of objection to the proposed legislative relief for scrimshanders does not stem from the appeal of scrimshaw as an art form. Rather, by the statement of its Secretary, it was the Society's satisfaction with the enforcement measures provided for in that legislation which led it to endorse the Senate version of S. 229. The Society's concern rightfully centers around the enforcement ability of the Departments of Commerce and Interior.

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[1] **Testimony of Congressman Gude before the House Subcommittee on Fish, Wildlife Conservation and the Environment July 1974.**

As was made abundantly clear by the hearings before the House Subcommittee on Fisheries, Wildlife Conservation and the Environment, fears that H.R. 10229 will create enforcement problems and thereby either weaken the Act or encourage a black market in sperm whale oil are unfounded. The adequacy of enforcement measure is readily apparent when the existing law, the permit procedures, and the proposed enforcement provisions of H.R. 10229 are viewed together. These procedures were discussed at length in our memorandum submitted to the members of this Subcommittee on February 24, 1976. To summarize the point made by that memorandum, the detailed reporting provisions, the registration and documentation requirements, the permit procedure under the 1969 Act and the burden of proof provisions of H.R. 10229 assure that all legally held stocks of sperm whale oil will be adequately accounted for and traceable. H.R. 10229, while expanding the proposed exemption to sperm whale oil, incorporates and strengthens the enforcement and reporting provisions of the Senate-passed S. 229.

In addition to the stringent enforcement measures of H.R. 10229, there is an even stronger argument in favor of permitting the sale of legally acquired sperm whale oil. It cannot be smuggled. This is due to the fact that the smallest quantity of sperm whale oil which can be economically imported is 500 metric tons in bulk, assuming a current U.S. market price of approximately 33¢ per pound.[2] There is, therefore, no risk of creating a black market. The Department of Commerce itself has testified that it anticipates no enforcement problems as long as the safeguards incorporated into the House version become law.

II. EXPORTATION AS AN ALTERNATIVE SOLUTION

An alternative proposal has been brought to this Subcommittee's attention. That proposal would continue to prohibit the current holders of sperm whale oil, including the United States Government, from selling in the U.S. market but would authorize the oil to be sold in the world market. We have already supplied this Subcommittee with the data necessary to compute the cost of such a measure to private industry. It is also our understanding that the GSA has independently made information respecting the cost to the taxpayers of this proposal available to this Subcommittee. In the event that the figures are not readily available to the members of this Subcommittee I have attached a copy of that information to this statement as Exhibit A.

The data clearly show that the alternative proposed legislation is not financially feasible. Millions of taxpayer dollars will be lost in such a venture. The world market is depressed and the transportation costs are high. ADM's calculations indicate that on its 8 million pounds, it would lose over one million dollars exclusive of lost profits. In view of the obvious cost of such a measure, further discussion of this proposal is not warranted.

CONCLUSION

The decision which this subcommittee must make can only be decided on the actual facts surrounding the need for the proposed exemption and the bases upon which the House passed H.R. 10229. These are:

(1) Current objections to the inclusion of sperm whale oil are based on potential enforcement problems in controlling smuggling;

(2) A need to reconcile the conflicting provisions of the Endangered Species Act of 1973 and the Marine Mammal Protection Act of 1972 on a logical and reasonable basis;

(3) Sperm whale oil cannot be economically smuggled;

(4) The Department of Commerce has testified that under H.R. 10229 it will have adequate enforcement measures to police the sale of registered, inventoried, stocks of legally-held sperm whale oil;

(5) Allowing the sale of registered, inventoried, stocks of legally-held sperm whale oil will not lead to the killing of additional whales since importation is prohibited and smuggling is imposible; and

(6) The suggested alternative of exporting existing legally-held stocks is not economically feasible for either the United States Government and its taxpayers or for private industry.

For the reasons set forth in this statement we urge (1) that the Subcommittee take no action on the proposal to allow existing legally-held stocks of sperm whale oil to be sold only in the foreign market and not the U.S. market and (2) that this Subcommittee recommend passage of the House version of S. 229.

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[2] To translate this into more comprehensible terms, 500 metric tons in bulk would fill 19 railroad tank cars and would occupy approximately 20,202 cubic feet of space. This is roughly equivalent to the size of a four bedroom two story house.

EXHIBIT A

Data Information Sheet

World market price [1]—16 cents per pound of crude.
Shipping costs (from Bayway, N.J.)—2 to 3 cents per pound of foreign flag.
ADM cost [2]—26 to 27 cents per pound.
U.S. market price [3]—33 cents per pound—Winterized. 40 cents per pound—Spermaceti Flakes.

STATEMENT OF WERNER G. SMITH, INC.

Mr. Chairman: Our firm seeks to cure thru legislation a conflict between the terminology of the Endangered Species Act of 1973 and the GSA Contract (GS-OODS (S) 41002) under the Federal Stockpile Disposal Plan whereby the Federal Government sold our firm approximately 16,209,774# of surplus sperm oil.

Way back in 1972, after carcful review by the various Congressional overseeing committees, 23,000,000# of sperm oil was declared surplus from the stockpile of strategic and critical materials. Congress directed GSA to sell this surplus oil. Advance notice of this proposed action by the GSA was published in the Federal Register on January 9th, 1973.

Prior to that date, on Nov. 22nd, 1972, the GSA stockpile disposal officers invited our firm to a sperm oil industry meeting to discuss disposal plans. On May 16th, 1973, the second industry meeting was held by GSA. On Sept. 20, 1973, bids to purchase surplus sperm oil were invited by GSA under Solicitation OIL-1. Our bid of Oct. 24, 1973 was not accepted. After meetings with GSA on Nov. 8th, Dec. 26th., and Dec. 28th 1973; our bid dated Dec. 28th 1973 was accepted. We signed the GSA contract Jan. 29th, 1974; GSA signed on January 31st, 1974.

Meanwhile, at the very same time that the GSA was carrying out the orders from Congress to dispose of this surplus sperm oil, Congress enacted the Endangered Species Act of 1973 on Dec. 28th 1973. Apparently, both actions were done in good faith but somehow without recognition that Congress had authorized disposal of the Federal stockpile of surplus sperm oil earlier.

The language of ESA 1973 appears to make no provision for our Permit ES 50, granted by the U.S. Department of Interior for the sale of pre-act oil authorized under ESA of 1969. Nor does the language of ESA 1973 seem to provide for the disposal of pre-act oil held in the Federal stockpile. Relief to dispose of pre-act oil holdings had been customarily granted under earlier endangered species acts.

ESA 1973 created quite a contradiction in what Congress intended. It created quite a large possible contradiction concerning the legality of sale of stocks in private business hands, which had been acquired legally, and in good faith, prior to ESA 1973, (Dec. 28, 1973).

It seems a colossal waste to stalemate the sale of perfectly good oil from being converted into several million dollars in revenue to public funds by reasoning that Congress enacted ESA 1973 to mean that Congress contradicted its own Stockpile Disposal Act and forbade the sale of its own surplus oil. This does not meet the test of common sense.

HR 10229, passed 2-17-76, seeks to cure this possible conflict and to convert a surplus stockpile asset into useable public funds and to terminate further Government storage expenses (currently $38,000.00 per year). Our firm paid for 6,482,908# of Sperm oil. As of December 28, 1974, we were told that the contract we entered into in good faith with our Federal Government can be possibly interpreted that it was illegal for the government to sell it to us and illegal for us to buy it or sell it.

In addition, many of our sperm oil customers have been frightened by letters from other branches of the Government expressing an opinion (not decided by any Court) that it might be illegal to buy or to use sperm oil.

The market for sperm oil in USA shrank drastically under the impact of the ESA of 1969. It has been further reduced by these threatening letters from Commerce interpreting ESA 1973 as forbidding the sale of sperm oil. How our federal

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[1] The World Market Price figure is based on estimated figures of the current price of crude sperm whale oil. Since sales of sperm whale oil would have to be made to a foreign distributor or supplier of sperm whale oil, this is the only form in which it can be sold in the foreign market.

[2] These costs include purchase cost, import duties, the interest on its investment and administrative costs.

[3] The U.S. Market prices for winterized oil and spermaceti flakes are based on estimated figures. Sperm whale oil cannot be sold in the U.S. market in crude form. It is placed in settling tanks where the oil separates from the flakes. The two end products are then sold separately. There is virtually no cost to the company attributable to this process.

government can expect us to live up to our contract by taking delivery of oil and paying for it—then, after they have taken our money—another federal department rules we can't sell it * * * and the government tells our customers it is illegal to buy it or use it. This defies common sense. It certainly defies the sanctity of a contract with the Federal Government. It is an unjust taking of assets without compensation * * * generally held to be unconstitutional. We can't believe this contradiction was intentional * * * in this case, the government seems to be a big centipede stepping on its own feet.

We respectfully ask the Senate to pass companion legislation to HR 10229 to cure our problem.

1. The sale of this surplus sperm oil causes no danger to the living whale population. (This oil was produced between 1941 and 1959).

2. This Domestic sale does not cause "smuggling" or a "black market" in sperm oil. No new oil comes into the USA. The GSA contract terms already provide that we keep a record of each sale for six years—and records open for inspection by GAO or GSA.

3. Sale of surplus sperm oil will convert a dead item of inventory to return $1,721,655 to the Federal Treasury from our firm, alone. It will terminate annual warehouse costs of $38,000.

4. It will provide American industry with a valuable raw material in order to buy time for a few more years for more research and development work until satisfactory quality substitutes can be perfected by industry or through the new crop development programs of the Department of Agriculture.

5. If the sale of surplus sperm oil is delayed further—it will kill the market and the stockpile will be unable to be sold. A large number of small firms will not be able to make products that will perform satisfactorily. They will be forced to drop sperm oil from their recipes and will be unable to reactivate its use at some indefinite, later date.

6. The highest revenue to the U.S. Treasury is to sell the oil for USA consumption. Japan, Russia, and other producing countries are net exporters. The cost of delivery to foreign markets will be a large item of expense, because much of the oil is packaged in drums. It would be a shame to sell it at a loss abroad, while USA users still need it and we agreed to pay better prices.

There are a number of uses for sperm oil for which a satisfactory quality replacement has not yet been found. Such as: a nutrient for a special strain of penicillin; topical salves, ointments, and pharmaceuticals; special lubricants for cold rolling certain steels; hypoid gear lubricants; extreme pressure metal working lubricants and cutting oils; fiber lubricants; leather tanning chemicals; slip agents for inks and varnishes.

There remains approximately 14,000,000# of surplus oil "sold but in limbo" in the Federal stockpile, plus 8 million pounds in industry; total 22 million. The way the market has been upset, it will take at least 6 years to market the oil in maintaining orderly values. The GSA contract terms allowed 6 years. There is too much oil to be consumed in three years. There is no common sense to force a sale faster than normal consumption. We estimate consumption, now, at about 4,000,000# per year.

With no harm to the environment nor to the living whale population, we petition the Senate to pass legislation as quickly as possible to convert this surplus to the direct benefit of Federal revenue—and American industry while there are a few industries still left who are interested in purchasing sperm oil. Or, by further delay, the chance to convert this idle surplus to Federal funds will soon be lost.

Thank you for the opportunity to describe our contradictory situation and seek your help in its correction.

Senator FORD. Let me announce to those, we have a long list, and they have extended our hearing now until 1 o'clock. But there will be an objection lodged at that time that no committees will be in session after 1 o'clock. I am willing to stay, but, under the circumstances, those who are now on the list who would like to come forward and make a brief statement and file their statements for the record—I want to try to hear everyone in the room that has an interest and who asked to be heard today.

So if you want to come forward now and give your statements, I would be delighted to hear you. I apologize for the manner in which we are treating you, but it seems like we are running pretty slow.

Let's kind of hold it here, and we will try to bring the rest of them up. We will try to put you in panels as far as the table is concerned.

We have two ladies over here, and we will give you both the opportunity to go first. We would be delighted to have your statements, and would you hit a highlight or two of what is in your statement?

STATEMENT OF ANNE WICKHAM, ASSISTANT WILDLIFE/CONSERVATION DIRECTOR, FRIENDS OF THE EARTH

Mrs. WICKHAM. Mr. Chairman, I am Anne Wickham, from Friends of the Earth.

I have some specific encouragements for the committee on the legislation as it stands, as it came over from the House. I will read that paragraph in my statement, because it gets right down to the bare bones of what we would like to see.

We understand that, very probably, the legislation will come out of the Senate to solve the problems that the various people have been telling you about, and I have some things I would like to see contained in the legislation.

I urge the committee to take the House bill and amend it to make perfectly clear that this bill is not meant to exonerate any person from acts committed in violation of the Endangered Species Act. I urge the committee to make it clear in the report that this 3-year period of sperm oil and scrimshaw dispersal via interstate commerce is the final period and that there will be no more exemptions.

Lastly, I urge the committee to encourage the Department of Commerce in the committee report to have a line item on the permit form which would indicate on first glance the amount of stockpile still remaining in a company's possession, so that there will not be any questions.

On the endangered species program, which is also very important to Friends of the Earth, the endangered species office has been a great disappointment to me and to Friends of the Earth over the last 3 years.

Shortly after passage of the Endangered Species Act of 1973, the conservation movement was dealt a devastating blow. The Arab boycott of 1973 pushed the administration towards Project Independence. With Project Independence came the pervasive feeling in the Department of Interior that our public lands were for one use only, the production of energy.

With that attitude gaining ground through 1974 and 1975, programs charged with protecting living resources on the public lands have suffered severe emasculation. A department increasingly involved in energy production, mineral leasing and the exploitation of nonliving resources absolutely should not be held responsible for those living resources' protection.

We have seen the advocacy from the Office of Endangered Species on behalf of the endangered species go from bad to worse in the last 4 years. The one agency charged with presenting the case for endangered species to the rest of the administration has been stifled. Where there should have been loud shouts over lack of listings, there are not so much as whimpers from the middle management people in charge.

What good is an office if there is no action? Why should we put more money into an operation that clearly is not doing its job?

Without some assurances from the administration and Assistant Secretary Reed that there would be changes in the running of the office, I, for one, would be loath to advise that they be given more money. I believe that the argument about lack of staff is hogwash.

Keith Schreiner has said in an interview in Science News that the simple fact is that it takes a minimum of 36 professional man days to list a single plant or animal species. I feel that the biologists and the botanists over there have done their job, and that they have done it under incredible circumstances. Mr. Schreiner said this morning that he felt that the agency was trying its hardest to speed things up. It seems to me that they started trying and moving a lot faster when it was announced that the Senate committee was going to hold hearings in March. We have seen a lot of action.

Also, it seems to me that Assistant Secretary Reed ordered Mr. Schreiner and his people to put some species on his desk within a couple of days after that order, and that we saw the critical habitat for the snail darter move very quickly after that.

The primates—we have documentation on the primates that will be shown in the record. It is all inexcusable. The chimpanzee has been dragging on since early 1973. We have memos that state that, internal memos. And I think something should be done, and I do not believe that the agency is doing what it can do.

I would like to see a sustained effort in what they are doing now. Would they continue, perhaps, if the House held two hearings a year and the Senate held two hearings a year? We could have one every 3 months, and we would begin to see some action.

Thank you.

Senator FORD. Thank you.

[The statement follows:]

STATEMENT OF ANNE WICKHAM, ASSISTANT WILDLIFE/CONSERVATION DIRECTOR, FRIENDS OF THE EARTH

Mr. Chairman, I am Anne Wickham, Assistant Wildlife/Conservation Director at Friends of the Earth, 620 C St. SE., Washington, D.C. 20003. Friends of the Earth is an international environmental lobbying organization with 23,000 members in the United States, and sister organizations in 14 foreign nations. I thank you for giving me this opportunity to testify.

My testimony will focus on two specific areas to which this hearing is addressing itself: the distribution of sperm oil and scrimshaw in an effort to take the United States out of the world market once and for all, and the Endangered Species program.

SPERM OIL AND SCRIMSHAW

The situation as I perceive it is that certain companies who knowingly and purposefully accumulated large stockpiles of sperm oil and scrimshaw materials via hardship permits in 1970–71, knowledgeable at that time that they were laying in more stock than was necessary under ordinary circumstances, have come to the Senate to ask the Senate's permission to return sperm oil and scrimshaw to interstate commerce in order to wipe out those accumulated stocks. What's more—two companies have come to beg for delivery of still more of this "difficult to sell" contraband.

I have been asked to be fair. I have been asked, as well, to consider the principles of equity and the financial implications for these companies if they are stuck with the goods, so-to-speak.

My first reaction is to retort sternly that industry should have thought about the long-range implications of speculating in endangered species products long before they contracted out for the sperm oil and whale teeth. Back in 1970,

conservationists warned Congress that the hardship permits might be used as a vehicle of speculation. We were told: "No, you exaggerate; these firms must be allowed to ease out of the outlawed markets. They need time." Well, that was five years ago. One firm announced in a House hearing that they would trade in the whale products market for as long as they are able to maintain supply and deliver on the demand. Another firm seems to have no intention of slowing down business, in spite of repeated Federal warnings. It looks to me as if there is business as usual throughout a good part of the industry.

I have no sympathy—as you have no doubt gathered—for the companies seeking passage of S. 229. Their appeal to my sense of equity is frankly ridiculous. Where was their sense of "fair is fair" when they augmented the commercial market for these whale materials by buying them five years ago? Is biological extinction fair to the whales? Is if fair to those of us who delight in these marvelous mammals?

My sense of responsibility is first and foremost to the whales, who cannot speak out in the Senate for themselves. My responsibility secondarily is to make the most out of a bad situation by trying to arrange an agreement for dispensing with stocks of these illegal materials, in order to rid the United States of sperm oil and teeth once and for all. In attempting to come to agreement, I would like to go on record as emphatically stating that these companies have caused their own problems. I feel no compulsion to help.

The U.S. Government, however, is paying close to $39,000 a year to store stockpiled sperm oil. We have investigated the possibility of selling it in Europe. That plan was dropped because a British firm has in recent months declared bankruptcy and flooded the market with cheap sperm oil. U.S. oil, with added transportation costs, would never find a buyer. With no outside buyers, we in the U.S. are forced either to use the oil ourselves or destroy it. I frankly could not advocate destruction. The whales have already been sacrificed. That leaves us with the option of using the oil ourselves.

I urge the Committee to take the House bill and amend it to make perfectly clear that this bill is not meant to exonerate any person from Acts committed in violation of the Endangered Species Act. I urge the Committee to make it clear in the Report that this three year period of sperm oil and scrimshaw dispersal via interstate commerce is the final period—no more exemptions. Lastly, I urge the Committee to encourage the Department of Commerce, in the Committee Report, to have a line item on the Permit Form which would indicate on first glance the amount of stockpile still remaining in a company's possession. That could be accomplished by simple subtraction from the total stockpile reflected on the previous Permit Form. The importance of this line item is that a clerk could very simply be alerted if a Permit request came in for a larger number of pounds than the company should have in stock. With the sperm oil glut in Europe, it would not be unreasonable for us to assume that a low budget smuggler might try to land some of the European oil. We should be prepared.

Industry has continued to purchase whale products, discounting fears of financial ruin. Even now private industry is awaiting receipt of GSA stockpiled sperm oil, to add to their supplies. Having come to rely continually on the Congressional or Administrative "Bail out," they have no reason to suspect that their pleas for help will be ignored. So here we are . . . true to form. The Administration has caved in. The House has caved in. This hearing will determine to what extent the Senate does the same. This hearing will determine exactly which restrictions are finally placed on commerce in marine mammal products. I hope that you, Mr. Chairman, and your fellow Senators, are able to hang tough.

ENDANGERED SPECIES PROGRAM

The Endangered Species Office has been a great disappointment to me, and to Friends of the Earth, over the last three years. Back in 1973, after passage of the expanded Act, we of the conservation community had high hopes for the protection of plant and animal species, and their habitats. The House of Representatives had done a fine job. The Senate had worked her will. The Department of the Interior was standing ready for action.

Shortly after passage of the Endangered Species Act of 1973, the conservation movement was dealt a devastating blow. The Arab oil boycott (1973) pushed the Administration towards Project Independence. With Project Independence came the pervasive feeling at the Department of Interior that our public lands were for one use only: the production of energy. With that attitude gaining ground

through 1974 and 1975, programs charged with protecting living resources on the public lands have suffered severe emasculation. A department increasingly involved in energy production, mineral leasing, and the exploitation of non-living resources absolutely should not be held responsible for their protection. (The fox is probably not the best choice for advocating the chicken's rights!)

We have seen the advocacy from OES on behalf of endangered species go from bad to worse in the last year and a half. The one agency charged with presenting the case for endangered critters to the rest of the Administration has been stifled. When there should be loud shouts over lack of listings, there are not so much as whimpers. What good is an Office, if there is no action? Why should we pour more money into an operation that clearly is not doing its job? Without some assurances from the Administration and Assistant Secretary Reed that there would be changes in the running of the office, I—for one—would be loath to advise that they be given more money.

I believe that the argument about lack of staff is hogwash. There are seven biologists in the Office. In an interview in Science News (August 9, 1975) Keith Schreiner, the man responsible for productivity at the Office of Endangered Species is quoted as saying: "The simple facts are these. It takes us a minimum of 36 professional man-days to list a single plant or animal species . . ." Then he goes on to say that his few biologists couldn't possibly do the job set down for them—that of protecting all the endangered and threatened plants and animals. Schreiner deftly obscures the obvious: that the biologists set priorities on listings they would like to see accomplished, they obtain a full scientific record on those species, and they generally sit back then for a long, long time awaiting bureaucratic agreement.

Using the Office's two botonists as an example: Bruce MacBryde has been with the Office for almost a year now. Gail Baker has been there nearly as long. Plans to list 1700 plants were published in the Federal Register last July (1975). In hearings before the House Merchant Marine and Fisheries Committee in October, 1975, testimony promised that listing would take place in December. It is now May of 1976 and there are no plants listed as either threatened or endangered. The work has obviously been completed by MacBryde and Baker. So, what precisely is the nature of the decisionmaking process that serves to drag this thing out? When can we expect the middle management of the Office of Endangered Species to sign off on—at the very least—the non-controversial species? Do they have any intention of listing the plants as instructed by the House and the Senate? I am cynical.

The same state of affairs is true of the status report on the world's primates. The Fish and Wildlife Service contracted in 1973 for a status study on primates at a cost of $50,000. Clyde Jones of the Bird and Mammal Laboratory in the Smithsonian was responsible for the project and finished the basic research, 900 pages worth, by January, 1975. Now, in April, 1976, under intense pressure from persons wondering where the listings have been, the Office has issued a press release proposing the listing of 27 species of primates. I doubt that final listing will be accomplished before the scheduling of still another Congressional hearing. (It is my observation over the last couple years that listings only occur when hearings are imminent. I wish the Office would prove me wrong.)

One of the species proposed for inclusion on the official list is the Chimpanzee. I am in possession of a note written on February 14, 1973, indicating that the Office was ready to list that species as early as February, 1973, but that they deferred until the end of the Plenipotentiary Conference on Endangered Species held at the Department of State that same month. I cannot believe that Endangered Species Office personnel were debating when to list early in 1973, and the listing is just being proposed now. If that isn't indicative of decisionmaking inertia in the Office, then I don't know what is.

Finally, I have severe doubts about the recent re-organization in the Office of Endangered Species. Biologists and botanists are trained to adjudge whether a species is surviving, or losing ground. I would hope that these hearings would bring out testimony on listing procedure. I am especially interested in knowing whose opinion will carry the most weight in listing; and if there is more than one opinion taken into account on an official level, then could the decisionmakers be identified with an approximate percentage of their opinion's worth for us. Also, I am somewhat wary of moving the scientific expertise away from the decisionmaking flow. Even the answering of routine letters will be more difficult with biologists tucked away in a Division of Research. If, in fact, the biologists are still caught up in answering phone calls for information from informational services personnel on OES, then the reason for sequestering them (so they wouldn't have to answer questions!) wouldn't be served.

Mark Imlay recently observed in the Washington Post: "Snails are indicators of the overall health of rivers, deserts, prairies or forests. If their health can be assured, then the health of the entire ecosystem can be gauged accurately on the microscopic plant, fish, bird, mammalian and aquatic organisms." Somehow we got to bring that point home to those in the Administration who place energy production on a higher priority level than biospheric quality.

Thank you.

Senator FORD. Mrs. Stevens.

STATEMENT OF CHRISTINE STEVENS, SECRETARY, SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

Mrs. STEVENS. Thank you.

I certainly second the complaints about the Department of Interior's foot-dragging. However, I would strongly urge substantially increased appropriations and authorization for appropriations, doubling that for both Interior and Commerce.

I think they need some very strong direction from the Senate, but they also do have to have the money if they are going to do the job. It is an immense job, and it has to be done, so we are recommending $20 million for Interior, $4 million for Commerce in the authorization.

Senator FORD. Do you approve of the 2-year——

Mrs. STEVENS. The figures I gave were for 1 year. But a 2-year authorization would be fine. Then you would say $40 million and $8 million. I think that would be very wise.

I also hope that the committee can ask for a rise in the ceiling so they can have more manpower. That is a serious problem. There are not enough actual people to do the work, and, particularly in the area of enforcement, you have to have a sufficient number of people.

And I would submit this statement that came out in the House from Interior when they were pressed to give the figures. They do not ask for enough until they are forced to do it. But this does give the information.

Senator FORD. I think the testimony this morning showed that there has been a funding problem. With regard to section 6, for instance, the Service asked for $4 million and the Department asked for $2 million, and OMB cut it to zero. There is an attitude to cut the expenditure of Federal Government today, too, across the land, and that is probably involved with some of this. So we have that to consider.

Mrs. STEVENS. Thank you very much, Mr. Chairman.

Because I think it is extremely important. Now, I would like to comment a bit on the sperm whale oil, which, as you say, is a fascinating subject. I think the one thing that has not been brought out here so far is the very people that are asking to have the law changed have been in serious violation for a long period.

For example, reports of Government investigations indicate that Archer Daniels Midland purchased more oil from NOPCO in February of 1975. Werner G. Smith's client Delbay has even admitted in open court that Smith has been selling oil. They are not just sitting there not making any money; they are making money. They are making money in violation of Federal law.

And, in my opinion, some of the money that ought to get back to the Government is not just from being paid for the sperm oil. They ought to get the money back in fines, and they ought to get it back in seizure of oil from people who were violating Federal law.

Because of the shortness of time, I might just submit the material that was published in Marine Mammal News, which gives a little more information about the 275 pending cases. I think Commerce should be very much commended for moving forward on these.

I would submit material which shows what the violations have been.

First, some companies were violating in 1974. And then we found that, looking at the Thomas Register, even after they had been put on notice by the Commerce Department, they went right on advertising in the 1975 Thomas Register to sell more sperm oil and more spermaceti.

So I think, Mr. Chairman, although I understand your feeling about these sums of money and the holding of the oil, which—we agree, is a great problem, yet I think the fact that you have before you apparent violators of Federal law asking you to make those changes, should mean you have got to scrutinize what they are telling you very, very carefully.

Senator FORD. I understand that. But also, I think GSA indicated this morning that they were transporting it illegally until they were advised by the Justice Department that they should not be doing it. So the fault lies a little bit on both sides.

And some way you and I have to find a way to protect what we want to protect and not damage those who were in good faith.

Mrs. STEVENS. Well, let's hope that GSA was in good faith. But I do not believe we can say that about Werner G. Smith, because they continued, as I say, to sell it.

Senator FORD. Well, I think that is in court, and I do not want to get involved in that.

Mrs. STEVENS. Well, Delbay's attorney said so, right in open court. They take the position that it is legal for them to sell it, and so they are doing it. So I am only making——

Senator FORD. You are repeating their case.

Mrs. STEVENS. Yes; what is said by people who bought it from them.

Now, in answer to this question about whether there could be any smuggling or not, we have material that we got from the Ministry of Agriculture, Import-Export House, Department of Trade and Industry in 1974 in Great Britain in which it gives the Japanese whale exports by country. There is a whole list of them; and to United States, 723,823,000 yen worth of sperm oil.

And we submitted this to the Department of Commerce, but they told us in order to find out whether the oil really had entered the country, it would cost $5,000 and take I do not know how many months. And, in effect, they just refused to do it.

Nevertheless, here the information is, in a plain government report in Britain. So when people say that they could not smuggle, I think you can see that they really can smuggle.

Furthermore, Mr. Bistritzky said, I think, why would anybody want to smuggle when they could sell it for more here? Well, that is the very reason. If somebody is holding a lot of sperm oil in Europe and they want to get the best price, they are going to try to get it in the American market. I mean, it is obvious. That is the best motivation I can think of.

We have got the high market, they have got the low market. So they are certainly going to try to get it in.

Now, how are we going to keep them from getting it in? That is really the question. If we have an open market, there will certainly be an attempt at smuggling.

Also, I would say on this question of the transmission oil, why did the DOD dump the sperm whale oil if, in fact, it is necessary? It is clear that the substitutes, if they are good enough for the U.S. Army, must be good enough for General Motors, to turn around an old story.

There is one more point I wanted to make, but, Mr. Chairman, I do not want to hold up other people that need to testify. The sperm oil disposal is a serious matter that should be looked into very, very carefully.

(The statement follows:)

STATEMENT OF CHRISTINE STEVENS, SECRETARY, SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

It is a pleasure to testify before this Subcommittee that was responsible for the Endangered Species Act of 1973, a law which places the United States in a world leadership position in the fight to prevent extinction of species. I am testifying on behalf of the Society for Animal Protective Legislation, the American Littoral Society, Committee for the Preservation of the Tule Elk, Endangered Species Productions, Environmental Policy Center, Friends of the Earth, Fund for Animals, Humane Society of the United States, International Primate Protection League, and the Wilderness Society.

The International Convention on Trade in Endangered and Threatened Species of Fauna and Flora is now in force, and much credit for this fact is due to the efforts of our government and citizens.

To carry out the mandate of the Endangered Species Act, it is of the greatest importance to increase appropriations for administration of the Act. We recommend that the authorizations for the Department of Commerce and the Department of the Interior both be doubled. That is, $4 million for Commerce and $20 million for Interior.

The budget for the National Oceanic and Atmospheric Administration includes no request for an increase in funds for FY '77 for administration of the Endangered Species Act. Only $541,000 was budgeted for the current year. Obviously this sum is inadequate. In a major west coast port, I found that only one single individual was in charge of the enforcement of this Act and the Marine Mammal Protection Act! How convenient for smugglers to have only State personnel working under contract to carry out federal regulations along with state laws with but one federal official, and he instructed not to take cases to court because that would cost money!

The record bears out the inadequacy of enforcement and this is publicly admitted by the Department as, for example, when Jack Gehringer, Deputy Director of the National Marine Fisheries Service, stated at House hearings, February 6, 1976, "Unfortunately these past and present actions represent only a fraction of what needs to be done for those marine species both known and unknown to be 'endangered' or 'threatened' with extinction."

If the Senate-passed S. 229 becomes law, very substantially increased funds will be necessary to prevent smuggling. Registry of existing stocks of whale bone and teeth and essential followup actions will be necessary to make sure that when any item of scrimshaw or pieces of uncarved bone or teeth from whales move in commerce, it is accurately accounted for. S. 229 also requires a task force to be established by the Secretaries of Interior, Commerce, and Treasury to act "in addition to and not in lieu of, existing enforcement activities."

A related problem, involving the Department of the Interior, is the smuggling of eleghant ivory into the United States in violation of the Lacey Act. It is common knowledge that African elephant ivory is coming into Alaska to supply the scrimshaw trade. Elephants will almost certainly have to be listed in the endangered or threatened category before the next authorization bill comes up. Elephant ivory smugglers are highly experienced. An article entitled "The Traffic in Ivory: Plundering for Profit," by Jon Tinker, Washington Post, May 25, 1975,

and The New Scientist in Britain, is the most outspoken and comprehensive report on the subject in print. It states in part, "Kenya has perhaps 120,000 elephants, and every year between 10,000 and 20,000 are being killed for thei. ivory. At this rate, the Kenyan elephants will be virtually extinct within a decader Kenya's ivory trade is currently worth around $10 million a year, but little of this money goes to the government of Kenya either, for officially it has banned all private dealing in ivory. The profits are made by a few merchants in Nairobi and Mombasa, who bribe the Game Department, the Wildlife Ministry, the customs and the police to let them ship ivory by the ton to Europe, Hong Kong, Japan and China . . .

"The April 8 shipment: The ivory shipment of Tuesday, April 8, 1.5 tons under LE 34649 and nearly 4 tons under LE 37755, went out on Sabena Flight SN 494, from Embakasi Airport, Nairobi, bound for Athens and Brussels . . . Where was Sabena taking this ivory? According to the export licenses, 3.8 tons were destined for China Light Industrial Products and 1.5 tons for China Natural Products Import-Export, both of Peking. But the Game Department's letter told a different story: 3.8 tons were going to Hong Kong, 1.5 tons to two Tokyo banks."

Dr. Iain Douglas-Hamilton, foremost student of African elephants, writes (Among the Elephants, Viking Press, 1975) "Unofficial slaughter of elephants is probably now worse in East Africa than it has been since the turn of the century." He reports on piles of ivory and rhino horn, found by the Manyara Rangers and the army, stacked in secret hiding places.

In the chapter entitled "The Indestructible Family," Dr. Douglas-Hamilton writes, "The largest kinship group was Boadicea's, which I observed on 314 separate days in the years 1966 to 1970—and which numbered nearly fifty before I left. For the group to reach this size, the kinship ties had probably lasted over a hundred years and possibly for much longer." When he tells of the pitiful attempts of young teen-age elephants to befriend even younger motherless ones—the result of ivory poachers' raids, the full tragedy of this demeaning trade comes home to us. The United States must not be party to enriching the criminals who fatten on the sorrows of these great, long-lived, intelligent creatures who form such close, life-long attachments among themselves. Douglas-Hamilton writes of "the undeniable anguish of the elephants struggling to save their loved ones," which he discovered when he immobilized animals for radio-tracking. He personally gave up this method of making scientific observations because he did not wish to inflict such mental suffering.

The following passage gives a glimpse of elephant social organization: "When we came [two years later in 1972] to check the family unit of the great matriarch, Boadicea, I was dismayed to find that four of the leading cows were missing. Boadicea herself was there, still standing suspicious and watchful, head and shoulders above the rest, but Giselle, who had been her closest associate, was gone, leaving her two young calves to Boadicea's uncertain care. Isabelle was also missing, but I found her daughter, Laila. She was now looking after not only her own calf, Bottlebrush, but Isabelle's calf as well. She allowed them to suck in turns; both had been born in 1969.

"Leonora's family was in an even sadder state; both she and her daughter, Slender Tusks, had disappeared. The survivors were leaderless and the young teenager, Two Holes, was trying to take on the roles of both mother and aunt. I watched her mill around in hopeless confusion at some minor alarm that she was unable to assess, trumpeting loudly to her little adopted siblings and cousins. The orphaned N'Dume stuck to her like a leech."

As Nobel Prize winner, Dr. Niko Tinbergen, wrote in the foreword to Among the Elephants, the elephants emerge as "highly intelligent and highly cooperative animals, on a par with, for instance, whales and dolphins." No true artist could wish to contribute to the decimation of the highest forms on both sea and land.

But, of course ivory, whether from endangered whales or from illegally killed elephants, is not the only problem faced by the Departments of Commerce and Interior. Sperm oil is the center of major controversy. One can only guess at the legal fees that industry has paid to lobbyists to date to help them repeal essential provisions of the 1973 Endangered Species Act so they can speculate in sperm whale oil and spermaceti.

Most recent action in this arena is the denial in U.S. District Court of Delbay Pharmaceuticals' motion for preliminary injunction to prevent the Department of Commerce from enforcing the provisions of the Endangered Species Act. Judge Gasch upheld the Department in its seizure of one million tubes of Lotrimin, a fungicidal lotion containing spermaceti. Delbay is a joint venture of the Schering Corporation and Bayer, A.G., a German corporation. The conclusions of law

stated by the court include the following: "The actions of defendants in seizing plaintiff's Lotrimin and bulk spermaceti were within their statutory authority as granted by the 1973 Act . . . There is danger of harm to the public interest if defendants' enforcement efforts are curtailed by the issuance of a preliminary injunction."

The Judge showed a splendid grasp of the principles on which the Endangered Species Act of 1973 is based when he said, "If plaintiff's spermaceti were allowed to enter interstate commerce, it could greatly increase the enforcement difficulties. A total ban is easier to enforce than a partial ban. If there were a continued market in this country for spermaceti, it might encourage the illegal taking of sperm whales to supply this market. A total ban may also encourage the search for other products, both natural and synthetic, to replace those derived from endangered species. This too will discourage the illegal taking of such species. It is clear that Congress intended to extend the prohibitions of the 1973 Act to their widest possible reach and that the extension of such prohibitions to include plaintiff's spermaceti may well serve the Congressional intent in enacting the 1973 Act."

If the dying whaling industry were able to develop a new market for sperm oil and sperm whale teeth in the United States reversing the trend started when Secretary Hickel listed the eight great whales under the Endangered Species Act of 1969, it might revive enough to seal the doom of all the species of whales it still hunts down. It is essential to prevent this from happening. Substitutes for sperm oil are available, and Delbay Pharmaceuticals testified that they are now at last using a substitute in the most recent manufacture of their lotion. This never would have happened had sperm whale oil continued to be legally available on the U.S. market.

The holders of sperm whale oil and those companies who have contracts with the government's General Services Administration to receive large quantities of oil are eager to change the law so sales would be legal. (Investigation by the National Marine Fisheries Service indicates that it has been being illegally sold.) Punishment for violation of the endangered Species Act includes a civil penalty of not more than $10,000 for each violation, or a criminal penalty of not more than $20,000 (for willful violation) or one year's imprisonment or both. Since GSA was well aware that the sperm whale was listed in 1970, it would appear that both civil and criminal aspects of the law were violated when GSA sold the oil.

On April 21, 1975, The Lorain (Ohio) Journal published a report by Richard G. Thomas which stated in part, "Werner Smith, Inc. acquired 6.4 million pounds under its contract between late 1973 and January, 1974, at which time the Justice Department noticed the clash with the Endangered Species Act and halted the sales to the two companies.

"Waldemar Meckes, president of the Cleveland company, said in a telephone interview that his contract is 'in limbo' as Congress decides what, if anything, it will do to the law.

"Representing the company is William E. Minshall, the former Cuyahoga County Republican congressman who retired last year and became a Washington lawyer and lobbyist. Minshall recruited Mosher's legislative help, Mosher said.

"Meckes is Minshall's brother-in-law and the former congressman is not accepting a fee from him, a Minshall aide said. While a congressman last year Minshall provided similar assistance to Meckes, according to the aide. The bill inspired by Minshall and introduced by Mosher would change the Endangered Species Act to permit interstate commerce in government sperm oil stockpiled before the law took effect."

Although the House did not act on the Mosher bill, it recently passed H.R. 10229 in a form which covers not only the GSA oil addressed by the Mosher bill, but also the oil held by big companies such as Archer-Daniels Midland. The companies who sought this action appear to have violated the Endangered Species Act, in some instances repeatedly.

For example, the Covington and Burling lawyer representing Delbay stated in open court that Werner G. Smith, Inc., who sold the spermaceti to Delbay, "takes the position" that there is no violation. He was responding to a question by the Judge who seemed startled at the company's intransigence.

In a letter dated August 4, 1975 to Congressman Robert Leggett from Dr. Robert White, Administrator of the National Oceanic and Atmospheric Administration, an attached "Status Summary—Investigations of Thomas Register Listings" states on page 4: "Werner G. Smith, incorporated, 1730 Train Avenue, Cleveland, Ohio. Date of Investigation: September 9, 1974. Summary of findings: Investigations of Werner G. Smith confirmed the purchase of 16,209,774 pounds of sperm whale oil from the GSA at a price of $2,868,466 on January 31, 1974.

Records indicate that oil was transported to the Werner G. Smith Company from GSA stockpiles outside the State. The company representative advised investigating Agents that Werner G. Smith actively offered sperm oil products for sale in interstate commerce. A review of the activities of this company, in view of the opinion issued by the Attorney General's Office, is continuing at this time."

In the same "Status Summary" seizures of sperm oil from Stevenson Brothers and from Leatex Chemical are recorded. Yet these firms continued to be listed in the 1975 Thomas Register just as they had been in the 1974 edition which led to the inspection by National Marine Fisheries Service agents.

I would submit this documentation for the record of the hearings, together with the ruling from the Justice Department, summarized in the Department's covering letter as follows: "As is stated in more detail in the memorandum, it is our opinion that the Endangered Species Act applies to the sales in question and prohibits them."

It is our hope that full scale enforcement of the Endangered Species Act will be undertaken so that violators will be discouraged from flouting the law. To do so, sufficient funds must be available. Authorization ceilings must not be so low that necessary appropriations cannot be made.

With the new international convention to comply with for the first time, the Department of the Interior which has prime responsibility for carrying out its mandates, must be properly funded.

If the Senate Commerce Committee decides, as we hope it will, to raise Interior's authorization from $10 to $20 million per year, we recommend that the Department be advised that the Committee expects a major change for the better in carrying out the provisions of the Act. The Department has been frequently and justly criticized for extreme slowness in listing species whose endangered status is already well established by reputable scientists. Systems have been used which automatically result in bureaucratic delays. It often appears that there is a lack of will to act.

This Committee which deserves such great credit for developing and passing the Endangered Species Act is in an excellent position to demand vigorous, whole-hearted administration of the Act. Able scientists are available to fill key roles, and with increased funding, they could and should become government servants. But the Congress will have to urge the Department to act for the benefit of endangered and threatened species. Only recently, an effort was made within the Department to downgrade the scientific staff and to separate them from active participation in the administration of the law. A firm directive from the authorizing Committee would be in order so the Department will understand that the Congress expects progress, not foot-dragging and bureaucratic excuses for failure to get species listed in time to help save them from extinction. It should not be necessary to sue government agencies in order to get them to enforce the law. Adequate funding and clear direction from the Congress should achieve the purpose. We respectfully request the distinguished members of this committee to pursue the course they have so effectively initiated to protect the wholesome and magnificient variety of species in the world rather than giving in to the current destructive trend toward ever increasing extinctions. We must never forget that we are living in the time during which species are becoming extinct more rapidly than ever before, and it is human activities that are causing this dangerous and unhealthy change.

The eminent mathematician Colin Clark has shown that more money can be made by driving the great whales to extinction than by using the restraint necessary to preserve these remarkable species. Whales reproduce so slowly that it is biologically impossible for them to meet the profits demanded by their persecutors. Yet it has been said, "as whales go so go the oceans," and there is no question whatever that living oceans are a necessity to the survival of man. The Senate has acted wisely in seeking to protect the whales and all the other endangered creatures. Now is the time to reinforce the wisdom of the actions taken in 1966, 1969, and 1973 for this legislation.

STATEMENT OF SCOTT WHITNEY, COLLEGE OF WILLIAM AND MARY, WILLIAMSBURG, VA.

Mr. WHITNEY. Mr. Chairman, I'll be very brief. My statement originally was in two parts. It contains a petition filed with the Secretary of Interior which I will just have included in the record.

My name is Scott Whitney, by the way. I'm a professor of environmental law at the College of William & Mary.

I have a complaint that is a little different from any you've heard so far. As you know, the 1973 act was intended to correct and improve its predecessor acts, the 1969 and 1966 acts. And one of the major problems with the 1969 act was that it failed to protect animals——

Senator FORD. Professor, would you take the microphone please.

Mr. WHITNEY. One of the major problems with the 1969 act was that it failed to protect animals that were threatened but had not yet reached the extremities to meet the statutory criteria for inclusion on the endangered list. So the 1973 act directed the Secretary to re-evaluate the situation and revise and republish the endangered list, and also create a threatened list.

A key provision in this section of the 1973 law requires the Secretary to specify—and I am quoting—"specify with respect to each species over what portion of its range it is endangered or threatened."

The purpose of this was to focus protection on animals that were truly endangered and where it was needed, and to correct the approach of the 1969 and predecessor acts, which had the effect that if an animal was deemed to be endangered anywhere, it was treated as endangered everywhere, despite the fact that you might have significant areas where they had predator control programs to get rid of super abundant populations.

Now, if the 1973 act were properly enforced, it would correct this situation because it would require the Secretary to specify where the animal—and the statute requires this—where it is, in fact, endangered, and thereby focus this.

Unfortunately, the Secretary has not done this, despite the fact that an organization—well, actually, some 19 organizations on January—in January of 1975 petitioned that he take into consideration under section 4(c)(2) whether or not—to designate whether, in fact, the leopard is endangered in all of its habitat or only part.

In the petition which I am including, simply for the record, in this petition we submitted extensive data from the very scientists whose testimony and whose input had been relied upon to put the leopard on the endangered list which indicates that it is not endangered except in extremely isolated areas. These scientists have taken a 180-degree turn on this matter.

Now, in this petition there have been a number of people who have attempted to ask the Secretary to do his duty, and under section 4(c)(2) of the act there is a provision under which, upon the submission of substantial evidence, he should consider this petition.

Now, we earnestly hope that this committee, among the many oversight functions that appear to be warranted in the case of the Fish & Wildlife Service, will add its forceful argument that the matter be considered.

All we are asking for is an administrative right that is specifically provided for in the act.

Now, this morning Mr. Schreiner assured this committee that he had largely solved this bureaucratic lag problem, and if that is the case, I would hope that we will not be compelled to resort to a Federal court to obtain a right that is specifically provided for in the statute, and I would hope this committee would enjoin, among other things, that the Service, in fact, give prompt, reasonably prompt considera-

tion to the petitions that are filed pursuant to the statute. It has been well over a year now. We have submitted substantial evidence. And there are a total of 19 organizations gathered throughout this country who have joined in this request. And all we are asking for is our day in court.

Senator FORD. Thank you very much.

Since we will be submitting other questions to Interior, we will follow up on your complaint here, as well, and will assure you an answer that would then be appropriate.

[The statement follows:]

STATEMENT OF SCOTT C. WHITNEY ON BEHALF OF THE COUNCIL FOR CONCERNED SPORTSMEN AND OTHER SIMILAR ORGANIZATIONS

Mr. Chairman, members of the committee, my name is Scott C. Whitney. I am Professor of Law at the College of William and Mary. I specialize in Administrative Law and Environmental Law and in the latter connection, I am concerned with Federal legislation related to appropriate protection of wildlife and wildlife habitat. I am aware of the many and urgent calls on the Committee's available time and accordingly will address myself briefly to a single issue related to the enforcement of the Endangered Species Act of 1973.

As you know, one of the purposes of the 1973 act was to correct and improve its predecessor, the Endangered Species Act of 1969. One of the major problems with the 1969 act was that it failed to protect animals that were threatened but had not yet reached such extremities as to meet the statutory criteria for designation as endangered. The 1973 act (16 U.S.C. Sec. 1533(c) 1) directed the Secretary of Interior to re-evaluate the situation and revise and republish the list of endangered species and to publish a list of threatened species. A key provision in this section of the law requires the Secretary of Interior to "specify with respect to each such species over what portion of its range it is endangered or threatened."

The purpose of this provision was to focus protection where it is needed, and to correct the approach of the 1969 act which had the effect that if an animal was endangered anywhere, it was treated as endangered everywhere. For example, if field data indicated a species such as the leopard was endangered in Somalia, it was placed on the endangered list even though in other areas the leopard may be so abundant as to require a predator control program. The 1973 act, if it were properly enforced by the Secretary of Interior, would correct this situation by the requirement that he specify the portion of its range in which it is either endangered or threatened. Leopards lawfully taken in other areas where they are neither endangered nor threatened could, with appropriate documentation, be imported by U.S. citizen sport hunters into the United States.

Unfortunately, Mr. Chairman, the Secretary of Interior has made little progress in discharging this statutory duty. This is true despite the fact that an organization named the Council for Concerned Sportsmen together with eighteen other sport hunting organizations throughout the United States petitioned the Secretary under the provisions of 16 U.S.C. 1533(c)2 to remove the leopard from the endangered list or at least to designate where, if anywhere, it may be endangered or threatened.

This petition was filed on January 21, 1975, more than a year ago and it is now nearly two and a half years after the 1973 act became law and still the Secretary has not acted. This matter has been repeatedly brought to the attention of the appropriate officials in the Department of Interior but to no avail.

I earnestly hope that this Committee will lend its force to our petition that this matter be considered and acted upon. Failing all other remedies, the Council would ultimately be compelled to seek relief in a Federal District Court. It is my opinion that Section 1533(c)1 imposes a nondiscretionary duty on the Secretary to rule on this matter and that Section 1533(c)2 provides a legal basis for a court order to direct the Secretary of Interior to do his duty.

I have appended to my testimony a copy of the petition which the Council and these other organizations filed with the Secretary. I believe you will agree we have submitted substantial evidence that this matter warrants review. I am hopeful this Committee will direct the Secretary to accord that review and thereby avoid the necessity of costly litigation.

COUNCIL FOR CONCERNED SPORTSMEN,
Washington, D.C., January 21, 1975.

Hon. ROGERS C. B. MORTON,
Secretary, Department of the Interior,
Washington, D.C.

DEAR SECRETARY MORTON: I am transmitting the enclosed signed Petition for Review of Endangered Species List relative to the leopard. Your early consideration of this matter is respectfully requested.

Sincerely,

THOMAS E. BASS.

Enclosure.

UNITED STATES DEPARTMENT OF INTERIOR, U.S. FISH AND WILDLIFE SERVICE, OFFICE OF ENDANGERED SPECIES, WASHINGTON, D.C.

PETITION FOR REVIEW OF ENDANGERED SPECIES LIST

Pursuant to the provisions of 5 United States Code § 553(e) (Public Law 89-554, September 6, 1966, 80 Stat. 383) and § 4(c)(2) of the Endangered Species Act of 1973 (87 Stat. 884), the undersigned herewith petitions the Secretary of Interior to review the validity of the prior determination to include on the United States List of Endangered Fauna (Federal Register, Vol. 39, No. 3, January 4, 1974) the leopard (panthera pardus), and in support of this Petition alleges:

1. The leopard is not now nor at anytime in past has been an endangered species in much if not most of its habitat in Africa and Central Asia.

2. The original determination to include the leopard on the Endangered Species List was based on the alleged fact that the leopard in limited areas was subject to poaching, illegal taking, expansion of human activities, and heavy hunting pressure.

3. Under the terms of the Endangered Species Act of 1969, unlike the 1973 Act, the Secretary of Interior had no duty to "specify with respect to each such species over what portion of its range it is endangered". Accordingly, acting on the allegation that the leopard was endangered in certain limited areas of its habitat, the Secretary placed the leopard on the Endangered List with the effect that lawful taking of leopard by American hunters was precluded in all of its habitat. This blanket prohibition is improper and has inflicted unwarranted hardship and abridged the rights of numerous sport hunters, many of whom are members in good standing of the undersigned organizations. Since the enactment of the Endangered Species Act of 1973 the Secretary pursuant to § 4(c)1 of said Act has a statutory duty with respect to animals published on the Endangered List to ". . . specify with respect to each such species over what portion of its range it is endangered. . . ." Nearly one year after enactment of the above-noted 1973 Act the Secretary has not as yet complied with this requirement.

4. On information and belief, the undersigned Petitioners allege that the primary if not sole basis for inclusion of the leopard in the Endangered List was done in reliance on a study and testimony by Mr. Norman Meyers. Subsequently, in November, 1974, Mr. Norman Meyers, based on a study conducted on behalf of the International Union for Conservation of Nature and Natural Resources (IVCN) and the World Wildlife Fund (WWF) has announced that ". . . I have come to a quite different conclusion." (4 International Wildlife No. 6, November-December 1974).

This reversal of position is based on findings that:

a. the leopard has a highly developed ability to conceal itself and thereby coexist with man viz. "in the great portion of Africa where human activities hold sway, the leopard hardly reveals itself: it has learned not to." (Id.)

b. the leopard easily survives on small prey readily accessible on settled areas viz. "This reveals another side to the leopard that enables it to survive in man-dominated Africa". (Id.)

c. the leopard is extremely versatile and adaptable to all kinds of physical habitat viz. "the leopard can adapt itself to whatever sort of environment it finds itself in. There is a Leopard Point on Kenya's Indian Ocean, and a Leopard Point on the crater ice fields of Kilimanjaro's summit in Tanzania. In between these two extremes, the leopard frequents every sort of savannah, whether woodland or grassland. It thrives in scrub country. It likes bush habitats, with their abundance of hunting cover. It can subsist in arid and semi-desert areas, deriving sufficient liquid from the blood of its victims and from juicy fruits such as desert melons. And it is at home in dense forests." (Id.)

d. The study found that quite apart from the leopard population co-existing in human dominated areas, there are vast areas of remote and rough country in which the leopard abounds and even illegal hunting does not threaten the leopard in such habitat viz. ". . . it simply has not paid to do business in such rough and remote country." (Id.)

e. The study concludes, "why did so many experts insist, in the late 1960s, that it was in desperate straits? Well, some experts who might have said otherwise were not asked—certainly not those in the rain forest zone. Others, like the author, based their assessment on hearsay evidence at second or third hand from only limited parts of Africa, such as East Africa. And forming a judgment on the basis of what people in Nairobi and Dar es Salaam report is not really a substitute for tramping the back paths of the bush, talking with poachers and middle-men distributors, conferring with ranchers and consulting with ecologists who spend 100 hours in the field for every hour in the city laboratory." (Id.)

Wherefore, the undersigned Petitioners respectfully request that the Secretary forthwith remove the leopard from the endangered List and require only a showing at the Port of Entry to the United States that a leopard specimen was lawfully taken in the country of origin.

Alternatively, the undersigned Petitioners respectfully request that the Secretary forthwith specify pursuant to § 4(c)1 of the 1973 Act the "trouble spots" if any in which the leopard is in fact endangered or threatened, and as to leopards taken in other areas require only a showing at the Port of Entry to the United States that a leopard specimen was taken in an area other than a designated "trouble spot" and that it was lawfully taken in the country of origin.

STATEMENT OF LESLIE HOOD, CONSERVATION CHAIRMAN, CALIFORNIA NATIVE PLANT SOCIETY

Mr. HOOD. Mr. Chairman, I am Mr. Leslie Hood of the California Native Plant Society and would like my statement included in the record.

Senator FORD. It will be so done.

Mr. HOOD. I would like to make several comments on it.

In California we have developed an endangered plant list, and we lead the Nation in this effort. We have been quite apprehensive over the amount of time that it has taken to come up with an official endangered list.

Mr. Schreiner this morning has given us some assurance that this will be corrected shortly.

TO STRENGTHEN THE ACT FOR BETTER PROTECTION OF PLANTS

I would like to suggest two amendments. It is the intention of the act that plants are to be included. However, in section 6(c)(3) on cooperative agreements there is no mention of plants. This should be corrected and every time fish and wildlife is mentioned it should be amended to read "fish, wildlife and plants."

In addition to section 6(c)(3) plants should be added in 2(a)(5) and section 3(13) as appropriate.

Additionally, I would suggest that if there is to be an effective conservation and protection program in the States, the States have to be brought in right in the very beginning. Protective programs should not come from a general listing; each State has to work out its own program. You cannot have a blanket program.

So I would suggest that the second amendment be made in section 6(c)(3) on the cooperative agreements. The word determination should be added so that line four reads, in part, "Active program for the determination of and the conservation of endangered and threatened species."

These two amendments would aid in effectively protecting the plants throughout the country.

I thank you.

Senator FORD. Thank you very much.

[The statement follows:]

STATEMENT OF LESLIE HOOD, CALIFORNIA NATIVE PLANT SOCIETY

Mr. Chairman, members of the committee: It is my privilege to appear before this committee and present this statement. My name is Leslie Hood and I am here in my capacity as conservation chairman of the California Native Plant Society. The California Native Plant Society is an organization of over 3,500 professional and amateur botanists dedicated to the preservation of native species.

The Endangered Species Act of 1973 is an excellent piece of legislation. When the legislation was signed into law nearly 2½ years ago the Society members were elated for this was a landmark. For the first time rare plant species would be accorded equal status with animals and, even more importantly the habitat was recognized as the critical element.

However, 2½ years later no plant has been declared endangered or threatened. While hopefully this will soon be remedied as there is an urgency for several plant species in California I can understand some of the problems involved. However, there are two minor changes in the legislation that would result in an enhanced plant protection program; they involve the cooperative agreements with the various states as covered in section 6.

Before, elaborating on this, a few statistics are in order to show California's importance and cause for concern. In the United States, excluding the noncontiguous States, there are approximately 21,000 plant species, give or take 1,000 or so depending who is counting. Of this total approximately a third, between 7,000 and 8,000 species—again depending upon who is counting—occur in California. Further, of the species that occur in California between 30 and 40 percent are found only in California. Thus we have something on the order of 2,500 plants that are found naturally no where else in the world. This includes such well known species as the big tree or Sequoia which grows only in the Sierra Nevada as well as a number of practically unknown species. Eight of the ten varieties of cypress in the state, are found only here: Several of them occur only in a few localities and one is known only from one small grove.

Hundreds of further examples could be cited to underscore the fact that California has a unique and varied flora and that many of these species have very restricted ranges.

In 1968 the Society aware of the increasing threat to many of the plants, through the growth and development in the state, embarked upon a project that has received a great deal of attention and is being emulated in a number of other States. The Society began to develop an inventory of the rare and endangered species in the state. With the exception of a woefully inadequately paid part-time coordinator, the work was done on a volunteer basis. Some 75 professional and top amateur botanists, specialists in either particular taxa or geographical areas were involved in the project. There is no need to go into the details of the mechnics but when such eminent professionals as Dr. Ledyard Stebbins, of University of California at Davis and one of the world's leading geneticists, Dr. Robert Thorne, curator of the Rancho Santa Ana Botanic Gardens, Dr. Elizabeth McClintock, curator of botany at the California Academy of Sciences, such ranking amateurs as Ernest Twisselman, author of the flora of Kern county, and Mary deDecker, author of the Inyo county flora, are participants as well as are professors of botany from most of the universities in the state, there can be little question as the authoritativeness of the Inventory.

During the period that the listing was being compiled, the Society was fortunate enough to receive a grant from the California Office of Planning and Research to map the known localities of the plant species that had been determined to be rare and endangered.

Thus in California we have both a listing of the rare and endangered plant species in the state and maps showing where they can be found.

This project was well underway before the Endangered Species Act required the Smithsonian Institution to develop a list of endangered and threatened species. While we did have input into the original Smithsonian listing our list and their list differed in some significant respects. The Society included some species that are rare in California but widespread in other states and did not include some species

that are common enough but are exploitable, such as cacti. Nevertheless, there was at least a 90 percent agreement between the two lists.

Since the initial publication we have worked closely with the staff of Endangered Species Project in the Department of Botany at the Smithsonian and the two lists are now in virtual agreement.

In keeping with the proportions noted earlier, approximately one third of the endangered or threatened plant species in the nation are in California, virtually all of them endemics.

This figure should make apparent the concern of the California Native Plant Society and others and our great desire to have the act implemented to protect the plants.

The main problem in the implementation as far as plants are concerned appears to be in section 6, cooperation with the states. Nowhere in this section are plants mentioned. This is most confusing and hopefully is simply an oversight for it is certainly the stated intent of the Congress to protect plants as well as animals.

I would strongly urge that the section 6(c) be amended to include plants after every mention of fish and wildlife. If this were done it would then assure that both the states and federal agencies, as noted in section 7, would be working in concert to assure that the vital habitats are not destroyed.

As I read the law, and I am not a lawyer, there appears to be another problem. Briefly, the Secretary of the Interior makes the determination of the status of species after consulting with affected states, among others. Whether this consultation with the state agencies is actually happening or not, I don't know. And while it is theoretically possible for anyone to petition to have a plant species be declared endangered, I would suspect that the Smithsonian listing will be the prime source for such declarations. Once the candidate listing has been published then there is a period of time for the states to respond. In those states that do not have an already developed listing of the threatened or endangered plant species, the response cannot be well informed. It becomes a question of "well if you say this is so, it must be."

To make the response more informed the cooperative agreements with the states should allow the state to adequately review all of the plant and animal species proposed for classification as endangered or threatened. It should permit the necessary research to determine the actual status of the species. Financial assistance should be given for the basic work of review, research and documentation as well as for the actual protective programs. While some states will not act and thus the ultimate power must remain with the Federal Government, by giving the states the chance to make the basic determination of the status of the plant species much more effective habitat protection programs will result.

STATEMENT OF JOHN S. GOTTSCHALK, VICE PRESIDENT, INTERNATIONAL ASSOCIATION OF GAME, FISH AND CONSERVATION COMMISSIONERS

Mr. GOTTSCHALK. Thank you very much.

I am John Gottschalk, vice president of the International Association of Game, Fish and Conservation Commissioners.

We represent the State and Federal and provincial conservation agencies through the United States, Mexico, and Canada.

Now, you have my statement. I will not attempt to go through it all. I would like to make two particular points.

Although we have not been satisfied with the Interior Department's administration of the statute, we have the utmost confidence in Mr. Schreiner. He has worked assiduously with our members in trying to discharge his responsibilities. We think his problems are those that he has identified; namely, a shortage of manpower, in particular, and money. And in addition to that, the over-expectations which many of us had for this act. We thought it would do things that it literally was not intended to do.

One thing, for example: A lot of people think that the act would automatically, on the basis of a presumption of endangerment, pro-

vide a means of putting animals on some kind of a list. In fact, the Congress did not intend that it would be easy to list animals. An examination of the record makes this clear, that Congress was afraid that things could be put on the list by whim or fancy, and wanted to assure that that would not happen.

Maybe that was not right. On that point I am not prepared to argue this morning in this limited time. But that is the fact of the case.

The only other thing I want to direct my remarks to, Mr. Chairman, is that at the time the act was passed, it was the intent of Congress that the States should be a full partner in this operation. And as you know, they have not been.

I have pointed out in my testimony several problems that relate to cooperation with the States, but we would like to propose for the consideration of the committee a further amendment to section 6 which provides for State cooperation.

One of the principal problems that several States have—and I might say that there are now 14 States that are almost ready to sign cooperative agreements with the Interior Department and get into full partnership—is that under the law, under subsection (1) of section 6, the Secretary of the Interior is empowered to list any species that he determines to be endangered, and before a State can cooperate, that State must have laws which give protection to those species.

In other words, a State must have a law right now which gives blanket approval to actions which some Secretary of the Interior may take some time in the future.

Most State legislatures are reluctant to give the Secretary of the Interior that kind of authority over the affairs of their State because the act does preempt the regulatory authority of the fish and wildlife agencies of the States until a cooperative agreement is signed.

We would like to suggest that at the end of section 6(c) of section 6 there be added an additional paragraph that says:

> Provided, that a State program for the conservation of resident species of fish or wildlife determined by the State agency or by the Secretary to be endangered or threatened shall be deemed an adequate and active program for the conservation of endangered and threatened species if the Secretary finds that the State program includes the authorities and provisions set forth in paragraphs (3), (4), and (5) of this subsection (c), and if the Secretary finds that the proposed State program includes plans to devote immediate attention to those resident species of fish or wildlife which the Secretary and the State agency agree are most urgently in need of conservation programs.

What this would do, Mr. Chairman, would be to make it possible for a State to work on those things which it had the authority to work on; thus, a State would be able to do what it could for the things that it could protect rather than being completely frozen out of the program, as the situation stands right now.

We think this would be a constructive step and urge favorable consideration by the committee.

Thank you.

Senator FORD. That does put the States—of being in the position of just in or out; it gives them an opportunity to proceed in an orderly fashion and to do those things that they can.

Mr. GOTTSCHALK. It operates on the theory that a half a loaf is better than nothing, if the alternative is nothing.

Senator FORD. Well, I think we have an Endangered Species Act in my State, and we work very closely with the fish and wildlife people there. I understand their problem as far as acquiring lands and that sort of thing; it gets to be quite a problem. As I stated earlier, when the States are willing to do their share, that we ought to come forward with some funds to help them accelerate. I think we need the cooperation of all, and I appreciate your interest and comments.

Mr. GOTTSCHALK. I might add, there is a precedent for this in the Coastal Zone Management Act.

[The statement follows:]

STATEMENT OF THE INTERNATIONAL ASSOCIATION OF GAME, FISH, AND CONSERVATION COMMISSIONERS

Mr. Chairman, I am John S. Gottschalk, executive vice president of the International Association of Game, Fish and Conservation Commissioners. The International Association is a voluntary association dedicated to coordinating efforts of public agencies responsible for preservation and management of the fish and wildlife of North America, whose governmental members include the wildlife agencies of all fifty states. We have a long history of sustained interest in endangered fish and wildlife. The published proceedings of our annual meetings make frequent reference to the subject and in the decade prior to the enactment of the current federal law a standing committee filed reports annually on the status of endangered species, the causes of endangerment, and what might be done to stay the decline of these species.

While we are not complacent with the long-term dismal outlook for wildlife in general and endangered species in particular, it is a source of some consolation that to the best of our knowledge no species has disappeared in the 48 contiguous states in the past quarter of a century or more. It is particularly worth mentioning that contrary to some of the predictions made at the time of the debate over the bill that later became the Endangered Species Act of 1973, that no species has become endangered as a result of "taking," whether because of hunting, fishing, trapping or any of the regulated forms of utilization of our fish and wildlife resources.

The real cause of the disappearance of our fish and wildlife, the destruction of essential habitat, goes on with ever greater intensity as the needs, real and imagined, of our increasing human population grow. If mankind is unable to find a balance between his material demands and the capability of the earth to supply them, the long-term future of most of nature as we have known it, is indeed bleak.

It is apparent from an examination of the lists of endangered species compiled by the states and federal wildlife agencies that there is a material difference in the need for concern over this problem among the various states. Some, notably Hawaii, have seen a number of species of both plants and animals disappear. Many others are in jeopardy. Other states harbor stable though small populations of species that may be classed endangered throughout their range by virtue of relative scarcity. Such is the case in Kentucky where there are but two endangered animals on the list of the Department of the Interior. One is the Indiana bat, a widely distributed species whose numbers have decreased alarmingly in recent years. A cave roosting and wintering species, it is particularly vulnerable to harassment because most of its population winters in only four caves. The other species is the red cockaded woodpecker, a species that inhabits mature southern pine groves. Prevention of cave destruction and disturbance of the roosting animals may be all that is needed to preserve the bat, although the impact of pesticides ingested with their insect food is unknown. The woodpecker merely needs a few acres of undisturbed woods per colony. In other situations the problems are obviously much more complicated.

Nevertheless, the authorized program has been beset by difficulties and considerable criticism. We think most of the problems are a direct result of overexpectations by many people that this Act would automatically and quickly solve all the ills afflicting our wildlife resources. At the same time we suspect that even the Government agencies failed to realize the great power in the Act and the enormous complications that would accompany its administration. We believe that the Congress intended that caution should be observed in determining which species were endangered and built into the Act procedures that would prevent

premature listings. Nevertheless, Congress wanted to be sure there was relatively free access to the listing system by the public; thus the Interior Department is being "whipsawed" between alarmists on the one hand and realists on the other. Added to these built-in complications is the fact that during the early days of this program the federal administration has been less than enthusiastic about requests for funds and manpower for programs not directly related to the country's energy and economic ailments.

These factors go far toward explaining the delays that have occurred. It has been a process of building up a new program administering capability while at the same time responding to the imminent problems the act was designed to solve. For example, at the same time personnel of the Fish and Wildlife Service were attempting to organize a staff and procedures to deal efficiently with the broad spectrum of problems, its leadership and limited staff were diverted to determine the status of kangaroos in Australia, negotiate the classification of the grizzly bear as a threatened species in Montana, and mediate the dispute over the American alligator. These were diversionary activities which prevented the Service from issuing needed rules and regulations on a timely basis, interfered with staff responsibilities in setting up a system for reviewing the status of candidate species, and prevented the expeditious development of cooperative programs with the states. Time will show that none of the animals involved were in dire straits. Indeed, it is painfully evident that under protection the alligator has rapidly assumed the proportions of a pest that must now be controlled.

While pointing out these problems we think the Fish and Wildlife Service has managed to accomplish a creditable record, a record contained in Associate Director Keith Schreiner's remarks at our annual meeting, September 8, 1975. Quoting from his remarks on that occasion, ". . . during the past 20 months. . ." the Fish and Wildlife Service:

Obtained supplemental or additional funds for carrying out the endangered species program.

Developed rules and regulations to implement the act.

Developed a Memorandum of Understanding with the Department of Commerce to delineate our areas of jurisdiction, coordination, and cooperation.

Briefed the state game and fish departments on the act and their obligations and responsibilities.

Briefed other federal and private organizations on the act and later on Section 7 and critical habitats.

Developed a model nongame and endangered species bill so that the states could obtain the necessary Authorities under Section 6.

Developed guidelines for the states to use in preparation of Cooperative Agreements under Section 6.

Initiated necessary action to Obtain Public Law 480 funds under Section 8.

Notified Interior agencies and other federal agencies about their obligations under the act, particularly concerning Section 7 and critical habitats.

Developed a method to implement the difficult but essential "critical habitats" part of Section 7.

Developed a better capability for handling the ever-increasing permit review and issuance workload.

Developed methods to reclassify the list that was inherited with the bill.

Developed systems to place in priority order (1) the endangered species themselves, and (2) the actions needed to help them.

Continued on-going programs and at the same time developed new budgets, justifications, and related documents for a rapidly expanding program.

Developed the means to handle thousands of letters, telegrams, and phone calls that descend on us annually.

Developed necessary documents to go with our ratification of the Convention on International Trade in Endangered Species of Wild Fauna and Flora including an Executive Order delineating the Scientific and Management Authorities and Appendix No. 3.

Developed a directory of endangered species interests to aid in communication with other endangered species workers and to help make the Department of the Interior (with our Commerce partners) the National Coordinators of an International Endangered Species Program.

Developed a number of educational materials on endangered species, including a whooping crane movie, TV spots to warn foreign travelers about illegal imports, species brochures, and teachers' packets.

Prepared most of the documents required for the addition of several hundred new species of plants and animals to be added to the Threatened and Endangered List.

Established about 50 recovery teams that are busily engaged in developing recovery plans and doing the things that are essential now to effect the recovery of over 50 high priority endangered animals.

Conducted the necessary legal and program reviews that have qualified seven states for Cooperative Agreements under the act, and notified nine other states that their Authorities or their programs are inadequate to qualify them for a Cooperative Agreement.

In short, we believe that the U.S. Fish and Wildlife Service has finally begun to get control of its administration of the Endangered Species Act. Because of the nature of the Act there will continue to be controversies and problems but at the level of the Service we are satisfied that given reasonable funding and manpower the problem is well on the way to becoming truly functional.

There are, however, three main and continuing areas of concern. The first is the task of dealing effectively with endangered plants. Here there are thousands of species of vegetation that must be studied, categorized and steps taken toward preservation. Few states have laws or agencies that afford protection to plant life, and there is presently no federal agency with the competence to deal effectively with a job of this magnitude. Meanwhile, there are probably many more plants in serious jeopardy than there are animals.

The second major problem is that as yet there has been no system evolved for determining the status of various endangered species, identifying their habitats, factors affecting their decline, and providing a logical mechanism for establishing priorities for action. Until such a system is developed and put into use, decisions over what species should be classified as endangered will continue to be the source of contention. We think the Fish and Wildlife Service should make the remedy of this shortcoming a matter of highest urgency.

Third, we think it is time the states are brought into full partnership in the program. This has not been done because of delays and indecision at the federal level. Some States are finding it impossible to qualify for federal funding under the Federal requirement that state law and programs must give protection to any species the federal agencies may at some time decide to list. The original draft of a model cooperative agreement, a prerequisite to funding under the act, was construed by many states to be a unilateral document and not acceptable. Its substantial revision in recent months has satisfied some states but others will require modifications before they can qualify to participate. Another factor that has impeded action by the States is the obvious reluctance of the administration to accept the grant-in-aid aspects of this cooperative venture. The $2,000,000 available in the current fiscal year is the result of congressional action, and the funds requests before the Congress contain nothing for State activities. A final problem is that many state wildlife agencies, operating as they do with money from the sale of hunting, fishing and trapping licenses are hard put to find the necessary matching funds to permit participation with the Federal Government. We think however, in the urgent cases, most of these problems will be resolved in the months ahead.

To give the committee the first hand views of one State wildlife agency director, I attach for the record a recent article by Mr. Robert Jantzen, Director of the Arizona Department of Fish and Game, entitled "The Endangered Species Act: It Needs Changing." Mr. Jantzen clearly describes the legislative problem in a state when it is called upon to give statutory protection to some obscure animal that may be looked upon by the legislature as an insignificant member of the State's fauna.

Finally, we wish to go on record as supporting the extension of the funding and time limits in the Act. The limits are the end of fiscal year 1976 for the operating authorities under Section 15, and fiscal year 1977 for the grants program under section 6. We believe it would be more logical and efficient if the authorities were to run concurrently. Moreover, we suggest that a limited period, of only two years, is both inefficient and unnecessary. We recommend therefore that the Section 6 and Section 15 authorities be extended to the end of fiscal year 1982. This would mean five years authorization for Section 6 programs, and six years for section 15 activities.

As to the amounts required, we are in general accord with the recommendations given to the House committee subsequent to the oversight hearings that were

held last year, with the exception of section 6 funds. Our recommendations are given in the following table:

OPTIMUM PROGRAM—ENDANGERED SPECIES—INTERIOR

[In millions of dollars; fiscal years]

	1977	1978	1979	1980	1981	1982	Total
Sec. 15	19	21.5	23.7	25	27.8	30	147
Sec. 6	4	9.0	12.0	15	20.0	25	85
Total							232

We have a material concern also with future programs of the National Marine Fisheries Service dealing with endangered species in the marine environment and much of the preceding discussion applies equally to that agency. The record of the National Marine Fisheries Service in endangered species work has been somewhat less than spectacular, though mitigated materially by the work undertaken for endangered marine mammals. Our estimates of an optimum program for marine endangered species are as follows:

OPTIMUM PROGRAM—ENDANGERED SPECIES—NATIONAL MARINE FISHERY SERVICE

[In millions of dollars; fiscal years]

	1977	1978	1979	1980	1981	1982	Total
Sec. 15	2.1	3.15	3.55	3.85	4.5	6.0	23.15
Sec. 6	1.4	2.1	2.65	3.5	4.2	4.7	18.55
Total							41.70

The recommendations in the preceding tables reflect a realistic appraisal of the probable costs of conducting the necessary studies, preparing recovery and management plans, establishing essential conservation programs, acquiring land and water habitat, enforcement of domestic law and treaties, and overall administration.

Thank you for the opportunity to present the views of the Association.

VIEWPOINT—THE ENDANGERED SPECIES ACT: IT NEEDS CHANGING

(Robert A. Jantzen, Director, Arizona Game and Fish Department)

After attempting to work with and understand the Endangered Species Act of 1973, I am convinced that the legislation needs substantial amendments to make it effective, and to accomplish the objectives ascribed to it.

There has been considerable rhetoric by the States individually and collectively with respect to the preemptive aspects of the law and its infringement on their traditional role in managing their wildlife. Although that is an important and vexing aspect of the law, let's set that aside. What are some of the other problems with it?

It is too broadly drawn. The definition of wildlife goes far beyond the primary types of animals it was originally intended to help. The higher forms of vertebrates that were in trouble stimulated the entire concept of the law. Yet the language defines all animals, including insects and arthropods, as wildlife, which has the effect of diluting attention and effort toward those life forms which were responsible for the law in the first place. Added to the Act also is consideration for the endangered and threatened flora of the United States and the International Convention of Trade is thrown in for good measure. The latter deals with international trade on a commercial basis for certain species and products obtained from them, and serves to confuse implementation of the Act even further.

To get back on the track of working with animals that more properly come under the commonly accepted definition of wildlife, the present law should be amended to delete the lower forms of animals such as insects and most arthropods, and to

also delete the plant kingdom. I am not suggesting that there be no attention given to these categories, however. New legislation should be drafted establishing a separate vehicle for their protection and enhancement. The expertise and knowledge for these forms lie in different agencies at the Federal and State level, too. Putting these programs under the aegis of another Federal entity, for example, the Department of Agriculture, would relieve the U.S. Department of the Interior and particularly the Fish and Wildlife Service of administering something for which they have no background experience, or real enthusiasm.

It should also be amended to allow the Secretary of the Interior to enter into cooperative agreements with the States for those species which have the legislative classification and an agency authority already established by State law. The present Act is worded so that each State establishing cooperative agreements must have the authority to work with and regulate all species which are, *or may become*, classified as endangered or threatened. This is fine as long as the species listed come within the definition of wildlife each State has on its books. The State can enter into the agreement, spend its money, (and perhaps get assistance from the Federal government if Congress makes funds available) for animals such as the alligator, Sonoran antelope, and Gila topminnow until somebody makes a case for a species of mountain butterfly. If it goes on the list, the entire cooperative program for that State goes out the window until the State collects that butterfly on its statutes and authorizes its agencies or agency to provide protection and regulation. This part of the Act was probably intended as an incentive to the States to get deeper into the business of managing all wildlife and force them to broaden their perspectives from the narrower one of game and game fish management.

Most State wildlife agencies agree to the concept, but still, they are the creatures of State legislatures. What started out to be a good idea and a desirable objective for good resource management is rapidly becoming viewed as a common mold the Congress is attempting to force all States into. This does not sell back home. State legislatures I know about are more concerned with their own determination of what is to happen in their State, rather than passing legislation to make sure they are not out of step with national policy. The carrot for cooperative agreements and expansion of State authority to accomodate all species of "wildlife" that might go on the list is, of course, money. But where is the money the Act authorizes with cooperative agreements? Two years have passed without this part of the law having been funded.

Testimony from the Department of the Interior and others stating that the thousands of wildlife biologists and enforcement officers employed by the States are critical to the success of the Act apparently falls on deaf ears in Congress. And what kind of a wedge does a State agency have to approach its own legislature and ask for authority and money to manage a butterfly? Certainly not the fact that the grant-in-aid program is going to be jeopardized, when there is no grant-in-aid program. The fact is that wildlife resources priorities are pretty low on the scale nationally when it comes to providing the dollars to do a job for wildlife. By amending the law to let the States work with those species they do have authorities established for within the terms of a cooperative agreement with the Secretary of the Interior, the sanctions that inhibit reaching the agreements would be lessened. The States could proceed with work on species using some of their own resources and still be eligible for assistance if Congress does cut some funds loose without the programs being jeopardized by addition of a stranger to the list.

These two amendments would go far toward making the Endangered Species Act a useful tool and one that will put some benefits down on the ground for species of wildlife that need special attention. They would streamline the law and remove some serious inhibiting factors from the States' standpoint which would allow them to operate more comfortably in partnership with the Fish and Wildlife Service.

Until the law becomes more practical and workable in the real world political terms of money and interest, the Fish and Wildlife Service will continue to face the frustrating and impossible task of administering the present law. In terms of progress it can be likened to driving a street sweeper in a sports car rally. The only real progress that has been made so far is the delisting of some species that should not have been classified to begin with.

My purpose is not to criticize the Fish and Wildlife Service for attempting to administer a law that over-regulates and is underfinanced. But I do believe that substantive amendments to the Endangered Species Act should originate with the responsible Federal agency.

Senator FORD. Mr. Thrun.

STATEMENT OF ROBERT THRUN, GENERAL COUNSEL, RINGLING BROTHERS-BARNUM & BAILEY COMBINED SHOWS, INC.

Mr. THRUN. I am Mr. Robert Thrun, the general counsel for Ringling Bros.

We have submitted a written statement, and we have attached to it suggestions for amendatory legislation.

I will take only a few minutes to try to point up two or three points.

First of all, the circus is a viable organization. We played last year to 6 million people—500,000 of those were children who received free tickets by arrangements. We have 500 employees, 300 of whom are AGVA members—acts, clowns, showgirls—and 200 of whom are workingmen in the Teamsters.

We played in 80 cities. We play mostly in municipal arenas with local employees and local finance problems. In all of those places we are probably the single biggest engagement.

We have a clean show; we have a family show. We are proud of it. We have animals with it. We think animals are important to the circus. With a relatively few animals we expose 6 million people throughout the country to elephants, tigers, lions, bears, and other species.

Historically, both Barnum & Bailey and Ringling Bros., were in their beginning the primary zoos in the country.

Now, what are our problems?

The first problem is the question of being a traveling show. A traveling show has to move fast from place to place. In fact, the International Convention on Endangered Species recognizes this. The International Convention provides that permits may be dispensed with between countries upon certain findings, so that the interstate problems concerning us were avoided on the international level.

Congress attempted to handle this problem in section 6(f) of the act. What that section says is that the States could not have inconsistent legislation. The problem, however, that has arisen is that there are certain States that have registration and other requirements which have the same effect. As a result you can be held up by technical requirements, and if you are held up and lose an engagement in the circus, all the legal rights in the world don't do you a bit of good.

I would like to illustrate this by reference to the Department of Interior's draft model State act which they are asking the States to adopt. I am not criticizing the Department of Interior; this has been a complicated problem, and we think they have tried to take into consideration different views.

Under their model act they forbid the export or the import of any endangered species from a State unless there is a Federal permit. Section 6(f) of the act voids any State Provision which Prohibits any activity permitted under a Federal permit or an exemption.

Now, however, the Department has interpreted the act by regulation in a way so that we don't need a permit or an exemption to cross State lines. So we are now faced with a possibility of a State saying we don't have a Federal permit; therefore, State law applies under the model State act enacted at the suggestion of the Department of Interior.

This is a forceful illustration. The fact is, however, that many States have other acts as well, and there is the definite possibility of

legislation at the municipal level. The result is that even though the intent of Congress is clear, under the present statute we have difficulties in practice.

Our proposed amendment—and maybe it could be done in connection with the amendment that was just suggested—goes along the lines that there is a real distinction between resident endangered species and imported foreign endangered species, and we provide different treatment for them. It is fully set forth in our written statement, but the theory is that where the species are resident, the State should have a lot of power so long as it is not exercised in a way inconsistent with Federal provisions. But where the species are foreign and have already passed through a permit procedure, there is no need to duplicate the procedures at the State level.

Another area where we have a problem is in going in and out of Canada. This also ties into the International Convention.

The International Convention does not use the tests that our act does. Our act uses a very restrictive standard. It provides that permits will be granted only for scientific purposes or to promulgate the propagation or survival of the species. This restrictive standard was obscured in the House hearings.

The test of the International Convention is that you may have a permit if you can show—and, of course, you have the scientific and the management authorities—that it will not affect the survival of the species. We think that is the fair test, and that it is the test that should be applied.

For example, under the act as now interpreted we could have the situation where we could not export the circus into Canada because this would not be for purposes of promulgating the propagation of the species or for scientific purposes, even though Canada, under the International Convention would, of course, find that this is not going to affect the survival of the species. We have proposed legislation to remedy this situation.

Another field in which we have difficulty is the long-term problem of breeding animals to replace those that are on the endangered species list.

We are presently self-supporting in tigers. We don't breed any more than we now do because, to mix a metaphor, extra tigers have become a white elephant.

Now, however, Indian elephants are about to be placed, I understand, on the endangered species list.

Breeding elephants is a very long-term proposition. It may take 15 years before elephants are ready to breed, and then you have to have a lot of space, security measures—it is expensive. It is not likely that several people could do this. You would have to have a special program. The Portland Zoo is the only one doing it now. We are exploring this possibility.

Indian elephants are the ones that are used in circuses. African elephants aren't susceptible, ordinarily, to being used in circuses. We would have to have some possibility of breeding elephants on a big scale in order to afford to do it at all. This means that we would have to have the prospect of trading or exchanging the elephants and their progeny with other zoos and circuses.

We have provided suggested legislation on the theory that there may be groups—and this grew out of our discussion in the House

committee—with whom it would be considered proper to trade in endangered animals.

I will give you one illustration, in conclusion. Maybe 15 years ago I had a call from the director of the Brookfield Zoo in Chicago, and he was absolutely hysterical. He said, "They're taking my okapi away."

What had happened is that they had a male okapi and we had a female okapi, and we were not a resident zoo, so they agreed to store it for us. At that point it had one child, and we were exhibiting it in New York. He said the problem was: "you may take it, it may die, and then you may take away the female, and here I've fed and taken care of this okapi for 2 years, and what do I have to show for it? "

Well, I got together with Henry Ringling North and him and worked out a very formal agreement providing that we would leave the female okapi there until there were offspring; that if the offspring were female, they would get the first one, we would get the second, and so forth.

Thank you.

Senator FORD. Thank you very much.

I would like to ask you a question. Probably it does not mean anything to anybody else. But does the name Zack Terrell mean anything to you?

Mr. THRUN. Not to me. But I have with me Chappy Fox of Ringling who knows as much about circuses as anyone.

Senator FORD. Well, Zack Terrell, I believe, was with Ringling many, many years ago; am I correct?

Mr. Fox. He was with the Cole Brothers Circus. He owned the Cole Brothers Circus.

Senator FORD. I have known him ever since I was able to walk.

Mr. Fox. You are associating him with Owensboro.

Senator FORD. That's correct. That was my hometown.

Thank you very much.

[The statement follows:]

STATEMENT OF ROBERT THRUN, GENERAL COUNSEL OF RINGLING BROS.-BARNUM & BAILEY COMBINED SHOWS, INC.

I shall address my comments to problems we are experiencing as a result of the enactment of the Endangered Species Act of 1973 (the "Act").

Briefly, the problems we see are in four areas:

1. Overlapping, and sometimes inconsistent, federal and state requirements affecting the interstate movement of endangered or threatened species;

2. The movement of the Circus in and out of Canada and other countries, which presents import and export problems;

3. The necessity of acquiring acts (most of which come from abroad) in which animals on the endangered or threatened species list are incorporated and which may be precluded by the Act; and

4. The fostering of programs for the breeding in captivity in this country of animals to replace animals which are traditionally presented in the Circus and which are, or, as in the case of Indian elephants, may in the future be placed, on the endangered species list. Although programs of this kind are something the Act should encourage, it is having the contrary result because of its tight restrictions on the sale or transfer of such captive bred animals.

Our examination of the legislative history indicates that the problems created in these areas were not contemplated when the Act was passed. We think they can and should be cured by amending the Act in limited respects: first, by providing for federal preemption with respect to the regulation of endangered and threatened species that are not indigenous to the United States and, second, by giving the Secretary of the Interior discretion to issue permits for activities of circuses and zoos which involve captive bred specimens or which he finds are not

detrimental to the survival of the affected species. These amendments will resolve a number of difficult problems without in any way compromising the purposes and policies of the Act.

Before directing comments specifically to these problems and our proposals, I would like to focus on the Act as it relates to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (the "Convention").

The basic purpose of the Convention is the preservation on a world-wide basis of endangered or threatened species—an objective we wholly support. Our own 1973 Act was intended to implement and complement the Convention. However, in its existing form, it goes beyond the provisions of the Convention in ways that have created hardships for circuses, zoos, etc. which were not contemplated. In this regard, we would like to bring to the Committee's attention two aspects of the Convention which we believe to be of particular relevance.

First, the Convention does not absolutely prohibit transactions and activities involving endangered species. What it does is establish permit requirements in connection with such transactions and activities. in this regard, the whole framework of the Convention is in terms of whether or not the particular act for which a permit is sought would be detrimental to the survival of the species. However, our own Act limits the granting of permits solely to cases where the purpose is to enhance propagation or survival or for scientific purposes. Thus, it imposes a ban even though the act for which a permit is sought is in no way detrimental to the survival of the species, thus gratuitously injuring the applicant without furthering the basic purposes of the Act.

The Convention, of course, does not prohibit individual countries from adopting more restrictive provisions than those found in the Convention. However, here it is important to note the distinction between those animals that are indigenous to each country and those that are not. In the case of its indigenous animals, each country has a primary interest in protecting its own resources, and it is in this area that the provisions of the Convention permitting more restrictive legislation have particular application. Thus, the provisions of the Act, to the extent they are more restrictive than the Convention, are appropriate as they apply to animals indigenous to the United States. However, with respect to non-indigenous species, other countries have a primary interest in their control, and it is the Convention that should establish the standard for the international aspect of their control. This is clearly set out in the preamble to the Convention which provides, in part:

"Recognizing that peoples and States are and should be the best protectors of their own wild fauna and flora;

"Recognizing, in addition, that international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade;".

Second, the Convention specifically recognizes that circuses and traveling shows have special problems which require flexibility which is not possible under a system requiring permits in advance. Thus, under Article VII of the Convention, circuses, zoos and traveling menageries are placed in a special category where, by administrative waiver, the permit requirements do not apply to endangered wildlife which were acquired prior to July 8, 1975 or are captive born.

Hence, under the Convention, circuses are expressly recognized as a kind of activity which should be permitted, and their movement across international boundaries is facilitated.

It should also be noted that in addition to these special provisions, circuses may obtain permits for the shipment of endangered or threatened species under the general provisions of the Convention where the import or export would not be detrimental to the survival of the species. These provisions in effect recognize that zoos, circuses, etc. have (in the language of the Convention's preamble) a unique "aesthetic, scientific, cultural, educational and economical" value and that their possession, exhibition and movement of endangered or threatened species is not detrimental to the survival of the species.

During the hearings on the Act, there was no indication from either witnesses or Congressional committee members that the activities of circuses were detrimental to the preservation of endangered or threatened species; nor was there any evidence of an intention to alter the normal conduct of circuses. In fact, a contrary conclusion is indicated by the specific congressional finding expressed in Section 2(a)(3) of the Act, that endangered species are of "esthetic, ecological, educational, historical, recreational and scientific value to the Nation and its people".

Nevertheless, a number of provisions of the Act, as written, could have an unintended adverse effect on our operations. The Department of the Interior has recognized this situation and has attempted to alleviate some of the problems

through implementing regulations. For instance, use of the phrase "commercial activity" in Section 9(a)(1)(E) of the Act was initially interpreted by some to apply to the movement of circuses across state lines. The Department of the Interior recognized that this interpretation was not contemplated by the legislative history of the Act and has now adopted regulations which define the phrase "industry or trade" as used in the definition of "commercial activity" to mean "the actual or intended transfer of wildlife . . . from one person to another in the pursuit of gain or profit" and, therefore, does not include the normal touring of a circus throughout the country. It may be desirable to incorporate this interpretation into the Act and proposed language for such an amendment can be found in Exhibit A to this Statement.

While the Department's action with regard to Section 9(a)(1)(E) is a welcome development, we believe a number of our problems remain unresolved and should be cured by amending the Act. Against this background we come to particular provisions of the Act which give us trouble.

Since we are a traveling show, our first concern is with the proliferation of state and local laws relating to endangered and threatened species. The requirements under these laws vary substantially and in some cases also depart significantly from the Act. We have already experienced difficulties under the various State laws and regulations, and we anticipate further problems.

The Department of the Interior has proposed a model state act relating to the regulation of endangered and threatened species. The model legislation applies not only to wildlife "normally occurring" within the adopting state but also to wildlife listed as endangered or threatened under the Act. While the Department has attempted to deal with the problems raised by a multiplicity of state laws, its model act does not resolve all of these problems.

Thus, the proposed legislation would not require a state permit in the case of activities that are already covered by a federal permit. However, there are activities for which no permit is required under the Act. For example, we can legally transport our animals from state to state under the Act without a permit. However, since a federal permit is not required, and hence not available, it is not clear that the exemption under the model act would apply. Under these circumstances, we would need a permit from each state in which we appear in order to enter and leave the state and to maintain possession of the animals while in the state.

In addition, we may be confronted with permit requirements covering the same activities in each municipality in which we appear since the model act does not rule out local ordinances except where inconsistent with the model act. We understand there has already been some agitation for this. This would create a burdensome and duplicative maze of regulation without serving any useful purpose.

The model state legislation proposed by the Department of the Interior at least attempts to deal with these problems. However, we are also confronted with a hodge-podge of state legislation relating to endangered and threatened species that was drafted without reference to the model act and that gives no recognition whatsoever to the problem of the interstate movement of animals. These statutes would require that we obtain a state permit even in cases where we already have a federal permit authorizing the activities in question. To this must be added the definite likelihood of legislation on a municipal level.

Section 6(f) of the Act was designed to prevent these problems from arising. Essentially, this provision attempts to negate state and municipal laws that are inconsistent with the Act. However, the question of inconsistency is often unclear, and the mere existence of inconsistent requirements, even though illegal, may give us severe problems, especially when the sanction for noncompliance is confiscation of the animals involved. There is no time for litigation or argument when you are trying to move a big traveling show.

We believe that the Act should be amended to provide that the various states and municipalities may not regulate activities involving endangered or threatened species which are not indigenous to the United States; in other words, to preempt this area in the case of foreign wildlife. Proposed language for this amendment can be found in Exhibit B to this Statement.

The approach we are suggesting would be consistent with the Convention; indeed, it would effectuate the scheme of the Convention and the purposes of the Act. The Convention sets standards for international trade in endangered or threatened species, but contemplates that a country in which any such species originates may set stricter standards. The Act governs the importation or exportation and interstate and foreign commerce in these animals. Once the federal government has acted, there is no need for additional levels of regulation. In fact these levels are contrary to the concept of Article VIII of the Convention which

directs the parties to insure that specimens shall pass through any formalities with a minimum of delay as well as Article VII of the Convention which waives the permit requirements in the case of zoos, circuses, etc.

This proposal would not alter the existing federal-state relationships with respect to species native to the United States or any particular state. It would not prevent any state from regulating wildlife normally occurring within the state and with respect to which it, therefore, has a special interest. It would also not interferewith the enforcement role played by the states since their officials could and, we hope, would continue this role under a federal-state cooperative agreement.

Another set of problems is raised by Section 9(a)(1)(A) which makes it unlawful to import or export endangered species from the United States. This provision has a substantial impact on the normal and customary operations of circuses, such as ours. For example, almost every year our Circus appears in several cities in Canada. In addition, we are developing plans for another unit which would appear in Canada and perhaps other countries in the course of its annual tour.

Another example of the effect of this provision is the restrictions it places on the importation of acts featuring endangered or threatened species. The circus tradition is strongest in Europe, and much of the best circus talent is found there. This is especially true in the case of animal acts where many circuses built principally around one family may be largely focused on one species of animal. Consequently, in order to get the best acts for presentation here, we have to import them and their animals some of which may be on the endangered list. In most cases, these acts are here on a temporary basis and will return to their own countries with their animals.

These activities are essentially the same as transporting the animals from state to state within the United States. They do not involve a "commercial activity" under Section 3(1) of the Act. They have no adverse impact on the survival of the species involved. They do not change the use or habitat of any specimen from what it has been in the country from which imported. The only difference is that these activities involve a temporary crossing of an international border.

We recommend that the Act be amended to provide broader grounds for the granting of permits so that the movement of our Circus across the Canadian border for example, and importation of acts featuring endangered species for appearance with the Circus in the course of its annual tour would be clearly permissible since these activities are of a temporary nature and have no adverse impact on the survival of the affected species.

A third set of problems is raised by Section 9 (a) (1)(F) which makes it unlawful to sell or offer for sales in interstate or foreign commerce any endangered species. In the past, it has been the practice to exchange, sell or acquire various now endangered species from zoos, animal parks or other legitimate persons in the normal course of the Circus' operations. This practice responded to the legitimate needs of the various parties to balance the numbers and types of animals each party had in a timely and convenient way. Now, because of the uncertainties under the Act, these activities have been interrupted.

This has had a counter-productive effect on the propagation of captive bred animals in excess of those actually needed or used in the circus production. Today we have some forty-three tigers, thirty-four of which were bred and raised by the Circus. We would like to continue breeding these animals and probably could do so at the rate of 20 or more per year; however, the restrictions in the Act on the transfer and sale of endangered species discourages us from doing this. It costs approximately $5,000 per year to feed and care for each tiger. Thus, it obviously becomes a useless and meaningless burden to breed tigers beyond the number we can use or sell. If, as has already been proposed, Indian elephants are added to the endangered list, the problem with respect to those animals would be vastly greater.

It would obviously be better to permit the transfer or sale of captive bred species among circuses, zoos, and other legitimate breeders. The future of captive breeding may depend on specialization by different breeders, whether zoos, circuses or others, in different animals.

In this connection, we note that the Department of the Interior has issued regulations under which certain categories of endangered species which are able to maintain a self-sustaining population in captivity would be deemed to be threatened rather than endangered. Wildlife within this class, subject to the granting of a permit, may be transported in the course of a commercial activity and may be sold in interstate commerce. We think this is a constructive approach. It is consistent with Article VII—the exemption provision—of the Convention.

We believe however, that the Department's approach should be broadened. It is restricted to a class which already exists within the United States and, therefore, precludes creating any new self-sustaining class of imported animals within this country. In addition, it relates only to interstate commerce and does not permit the export or import of any wildlife falling within this category. In this connection, it is not even broad enough to permit the import of endangered species that would otherwise be permitted under the exemptive provisions of Article VII of the Convention.

We are, therefore, recommending that Section 10(a) of the Act be amended to expand the purposes for which permits may be granted to permit those kinds of legitimate activities in the normal course of the operation of circuses. At present, Section 10(a) authorizes the Secretary of the Interior to grant permits for otherwise prohibited activities only where they are undertaken for "scientific purposes or to enhance the propagation or survival of the affected species". We suggest that the grounds for granting permits under Section 10(a) be broadened in the case of circuses, zoos, menageries and other similar exhibitions to give the Secretary of the Interior discretion to issue permits with respect to activities that involve specimens bred in captivity or where he determines that the activity is not detrimental to the survival of the affected species. Proposed language for this amendment can be found in Exhibit C to this Statement.

One of our principal reasons for concern has to do with the long-time future of the Circus. We believe the greatness of The Greatest Show On Earth depends on its animals—the horses, the tigers, the lions, the camels and particularly the elephants. It may not be possible to maintain certain animals, such as elephants, in their native habitat. Thus alternative methods for insuring their survival must be found.

The example of the Indian elephant perhaps best illustrates the point that the restrictive grounds for granting permits under the Act unwisely limit the alternative methods for insuring the survival of a species. This is one instance where importation from the wild may be the solution to survival of the species. The standards for granting of permits under the Convention would permit this. But those in the Act may be too narrow; they require a direct showing that the importation is "to enhance the propagation or survival of the affected species". However, because of economic and time factors it may be impossible to substantiate this purpose where we are principally an exhibitor of circus acts.

I believe one of the only successful breeding programs involving elephants has been at the Portland Zoo. While we are now focusing on the problem of breeding elephants, possibly by artificial insemination, it may take many years to develop a successful breeding program. We understand that elephants are not capable of breeding until they are approximately 12 to 15 years of age. The gestation period is two years. The cost of maintaining an elephant is substantial. To be able to undertake costs incident to a breeding program, we must use some of the animals in the Circus during and after the gestation period, and if we are successful, sell them or their offspring to other circuses, zoos, etc. Thus, the prospect of Indian elephants being subject to the Act's limitations on the transfer and sale of endangered species becomes a severe impediment to the development of a successfull breeding program.

While we might not be able to make a direct showing that each importation, sale or transfer would enhance the propagation or survival of the species, certainly it could be shown that none of these activities was detrimental to the survival of the species. We think the Department of the Interior should have the authority to grant permits under such circumstances.

There remains one final consideration, and that is whether the changes we suggest endanger the purpose of the Act. We do not think so. The thrust of the Convention is to prohibit certain acts without permits, but permits may be obtained—and the criteria is always this: Will the permitted act be detrimental to the survival of the species. We think the treatment accorded circuses in the Convention indicates that there is nothing in a circus as such that is detrimental to the survival of the species.

On the other hand, the restriction of the criteria under which permits may be granted under the Act, as applied to circuses, does threaten the life of the circus. While some proponents of the Act may be of the view that there is no other interest to be protected, we think other interests—cultural and humanitarian—deserve consideration.

This year we are 106 years old, and we have been operating continuously for that period. We are known as the longest running hit in show business, and we are really the major form of live family entertainment in America today.

When P. T. Barnum began, the first thing he did, prior to going into the circus business, was to have a traveling zoo and menagerie. This was one of the earliest zoos in the United States. Since its inception, Ringling Bros. has featured animals as an integral part of its Circus. In fact, in the early days, Ringling Bros. probably had the largest display of animals in the United States.

Today we have two traveling units which in the course of the year play in arenas in approximately 80 cities in some 35 states in the United States plus several cities in Canada. This gives many people who live in places where there is no major zoo, or no zoo at all, a chance to see our animals. What we are doing is bringing rare and exotic, and in some cases endangered, animals to them for educational as well as entertainment purposes. There are about 20 traveling circuses in America today, but none of them has the number and variety of animals that our Circus has. The fact is that the cost of caring for, transporting and feeding animals has risen to the point where circuses such as ours are endangered even without additional burdens.

In many cases the public schools, as one of their annual field trips, take all of the students to see Ringling Bros. and Barnum & Bailey Circus. What they see, in addition to the animals themselves, is the interaction between man and the animals under the tutelage of expert animal trainers such as Charly Baumann or Gunther Gebel-Williams, who are masters of their trade and who literally love and devote their lives to their animals. All of the animals are displayed in their majestic beauty, and are doing feats that are natural to the animal, but illuminated by expert training and presentation.

The care and treatment of these animals is of utmost concern to us. We have a full-time veterinarian, Dr. Henderson, who has worked with our circus animals for thirty-five years. He has been successful in developing a breeding program that makes us self-sufficient in tigers.

This year we are celebrating America's Bicentennial by presenting our special Bicentennial edition which has received formal recognition from the Bicentennial Commission and has been extremely well received around the country. Our reception clearly demonstrates the educational, historical and recreational value of our show. We want to be able to continue to bring our unique form of family entertainment featuring tigers, elephants and other animals to the American public.

The Circus is a business, albeit a unique business, and like all businesses seeks to make a profit. The suggestion is sometimes made that profits are wrong and that they somehow involve exploitation, especially where animals are concerned. This is not the case. The people in this business are in it because they are show business people. They could make as much or more money if they were in another business, but to them there is something in the circus that brings satisfaction you do not find in the kinds of ordinary business. Their pride is in putting on a quality show, and the greatest show.

It is a family show. It is a show nobody need be ashamed to go to. It does not have X ratings. I can remember trading out a television agreement long before the agitation about smoking and pollution and drugs. Early in the 1950's, we insisted and obtained provisions in our contracts that the sponsorships would not be inconsistent with the family show we are putting on.

More than 6 million people went to our Circus last year, and 500,000 of those admissions were gratis tickets given to children, orphans and others, who would not have otherwise been able to see a show. I think when we are considering humanitarian considerations, that has some value.

We also have specialized personnel. We have 300 performers as well as 200 other employees, all unionized. We are the biggest employer of circus acts, not only in this country, but in the world. A lot of those performers cannot have employment otherwise. In fact, Ringling Bros. and Barnum & Bailey Circus gives them a guaranteed year-round employment of a kind that is available nowhere else.

Several years ago, Mr. Irvin Feld, President and Producer of the Circus, was worried about the supply of clowns, just as we are worried now about Indian elephants, and he started a clown college. Last year we had 3,000 applicants. We can only take 50. The college is tuition free although the cost to the circus is almost $5,000 per person. The people that go to this college are not usual types of people. They may find through this a lifetime of activity that they could find no place else.

As I said previously, we play in some 80 cities each year and in most cases appear in arenas which are municipally owned. We are by far the biggest attraction in most of the arenas. And their employees would be affected, as well as municipal

finances, if we were unable to continue presenting our show as we have in the past.

Our continuity is important to many other people as well, and I bring all these things together under humanitarianism, because it seems to me, if you are humanitarian, you look at all considerations. You are not just humanitarian because you like animals. You are also humanitarian because you like people, and you like people in jobs.

It is our belief that the amendments we propose, copies of which accompany this Statement, take these considerations into account without compromising the purposes and policies of the Act in any respect.

Exhibit A.—Proposed Amendment by Ringling Bros.-Barnum & Bailey Circus

AMENDMENT TO SECTION 3(1) OF THE ENDANGERED SPECIES ACT OF 1973

The proposed amendment confirms that ordinary activities of a zoo, circus, menagerie or other similar exhibition, other than a sale or transfer of a threatened or endangered species for gain, shall not be deemed commercial activities even though they involve such species. (See explanation below text of proposed amendment.)

TEXT OF AMENDMENT

Section 3(1) (87 Stat. 885) is amended in its entirety to read as follows:

"(1) The term 'commercial activity' means all activities involving the actual or intended transfer of endangered or threatened species or any commodities containing parts thereof from one person to another person in the pursuit of gain or profit, but excluding those activities of a zoo, circus, menagerie, or other similar exhibition not involving any such transfer."

EXPLANATION

The purpose of this amendment to the definition of "commercial activity" in Section 3(1) of the Act is to confirm that the normal activities of zoos, circuses, menageries and other similar exhibitions are not commercial activities under the Act. Thus, for example, the possession or transportation of a tiger by a zoo or circus for exhibition purposes would not be a "commercial activity". However, the transfer of an endangered or threatened species for gain or profit to or from any of these persons would still be considered a "commercial activity." This amendment is consistent with the interpretation contained in the regulation promulgated by the Department of the Interior (See 50 C.F.R. 17, Subpart A, Sec. 17.3) defining the phrase "trade or activity" as now used in the definition of "commercial activity."

Exhibit B.—Proposed Amendment By Ringling Bros.-Barnum & Bailey Circus

AMENDMENT TO SECTIONS 3 (87 STAT 885) AND 6(f) (87 STAT 891) OF THE ENDANGERED SPECIES ACT OF 1973

These amendments are designed to deal with the problems confronted by travelling circuses and other exhibitions as a result of the multiplicity of laws and regulations on the State level dealing with endangered and threatened species. The amendment to Section 6(f) of the Act grants the Federal government exclusive authority with respect to nonresident or foreign endangered or threatened species while retaining the present division of authority between the Federal government and the States with respect to resident endangered or threatened species. (See explanation below text of proposed amendment).

TEXT OF AMENDMENTS

Section 3 (87 Stat 885) is amended by adding new paragraphs 17, 18 and 19 as follows:

"(17) The term 'foreign' means that which is not indigenous to the United States.

"(18) The term 'nonresident' means that which is not indigenous to the United States or any particular State.

"(19) The term 'resident' means that which is indigenous to a particular state."

Section 6(f) (87 Stat 891) is amended by—

(1) adding a new first sentence as follows:

"(f) Any law, regulation or ordinance of any State or any political subdivision of any State which applies with respect to the importation, exportation, possession, exhibition, sale or offer for sale, processing, delivery, receipt, carrying, transportation or shipment of, or interstate or foreign commerce in, nonresident or foreign endangered or threatened species, or any provision for registration or submission of an application or report with respect thereto, is void."; end

(2) amending the present first sentence thereof in its entirety to read as follows:

"Any law, regulation or ordinance of any State or political subdivision of any State which applies with respect to the importation, exportation, possession, exhibition, sale or offer for sale, processing, delivery, receipt, carrying, transportation or shipment of, or interstate or foreign commerce in, resident endangered species or threatened species, or any provision for registration or submission of an application or report with respect thereto, is void to the extent that it may effectively (1) permit what is prohibited by this Act or by any regulation which implements this Act, or (2) prohibit what is authorized pursuant to an exemption or permit provided for in this Act or in any regulation which implements this Act."

EXPLANATION OF AMENDMENTS

The purpose of this amendment is to eliminate the problems faced by circuses and other travelling exhibitions as a result of laws and regulations of States relating to endangered and threatened species. The requirements under these laws vary substantially and in some cases depart significantly from the Act. The Act envisioned potential conflicts under a dual Federal-State system of regulation of threatened and endangered species and made void inconsistent State provisions. Nevertheless, a number of States have inconsistent statutes and regulations. Travelling exhibitions, however, are not in a position to challenge these inconsistent provisions, particularly because of the time limitations imposed by their schedules.

In addition, many States have adopted duplicative statutes which impose burdensome administrative requirements. These provisions create substantial compliance problems for circuses which travel through many different States in the course of their annual tours, especially where these provisions are accompanied by the sanction of confiscation. These State provisions serve no purposes not already accomplished by the Act with respect to foreign or non-resident species.

Under the proposed amendment the various States and municipalities would be prohibited from regulating activities involving foreign or nonresident endangered or threatened species. In other words, the Federal government would preempt this area in the case of foreign wildlife. This would be consistent with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (the "Convention:); indeed, it would effectuate the scheme of the Convention and the purposes of the Act. The Convention sets standards for international trade in endangered or threatened species, but contemplates that country in which any such species originates may set stricter standards. The Act governs the importation or exportation and interstate and foreign commerce in these animals. Once the Federal government has acted, there is no need for additional levels of regulation. In fact these levels are contrary to the concept of the Convention that species pass through any formalities with a minimum of delay.

This proposal would not alter the existing Federal-State relationships with respect to species native to the United States or any particular State. It would also not interfere with the enforcement role played by the States since their officials could continue this role under a Federal-State cooperative agreement.

EXHIBIT C.—PROPOSED AMENDMENTS BY RINGLING BROS.-BARNUM & BAILEY CIRCUS

AMENDMENT TO SECTION 10(a) (87 STAT 896) AND SECTION 10(d) (87 STAT 896) OF THE ENDANGERED SPECIES ACT OF 1973

The proposed amendment to Section 10(a) of the Act expands the basis on which the Secretary of the Interior (the "Secretary") is authorized to grant permits for otherwise prohibited activities. While retaining the present exceptions, it also authorizes the Secretary to permit circuses, zoos, etc. to engage in otherwise prohibited activities where the affected species were born in captivity or where the activity is not detrimental to the survival of the affected species. These additional grounds for granting permits incorporate the basic test under Articles III and IV

of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (the "Convention") and one of the tests under Article VII of the Convention.

The proposed amendment to Sec. 10(d) of the Act would implement the proposed amendment to Section 10(a) by simplifying the permit procedure for circuses, zoos, menageries and other exhibitions. It establishes a rebuttable presumption that their participation in certain otherwise prohibited acts will not operate to the disadvantage of an endangered species and will be consistent with the purposes and policies of the 1973 Act where the affected specimen was born in captivity or was previously the subject of a permit granted under subsection (a) or (b) of this section with respect to a similar act and will be used only for zoological, educational, scientific or propagational purposes. (See explanation below text of proposed amendments).

TEXT OF AMENDMENTS

Section 10(a) (87 Stat. 896) is amended in its entirety to read as follows:

"Sec. 10(a) Permits—The Secretary, under such terms and conditions as he may prescribe, may permit, or waive the requirement of a permit with respect to, any act otherwise prohibited by Section 9 of this Act for scientific purposes, to enhance the propagation or the survival of the affected species or, in the case of any circus, zoo, menagerie or other similar exhibition, where the specimen was bred in captivity or where the act, in the discretion of the Secretary, will not be detrimental to the survival of the affected species."

Section 10(d) (87 Stat. 896) is amended to add a new second sentence to read as follows:

"In the case of an application by a circus, zoo, menagerie or other exhibition for a permit or an exemption under subsections (a) or (b) of this section with respect to an act otherwise prohibited under Section 9(a)(1) (A), (E) or (F), there shall be a rebuttable presumption that the conditions of the foregoing subparts (2) and (3) have been met where the affected specimen was bred in captivity or was previously the subject of a permit granted under subsection (a) or (b) of this Section with respect to a similar act and will be used only for zoological, educational, scientific or propagational purposes."

EXPLANATION OF AMENDMENTS

The purpose of the proposed amendment to Section 10(a) of the Act is to conform the permit process under the Act with the permit policy of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (the "Convention"). The basic standard under Articles III and IV of the Convention is whether the export or import of an endangered species is detrimental to the survival of the species. Further, the Convention specifically recognizes that circuses, zoos, menageries and other travelling exhibitions require special consideration. Thus, under Article VII of the Convention, these exhibitors are placed in a special category where, by administrative waiver, the regular permit requirements do not apply to endangered species which were acquired before July 8, 1975 or are born in captivity.

By contrast, the Act presently limits the granting of permits solely to activities undertaken for scientific purposes or for purposes of propagation or enhancement of the affected species and thus imposes a ban even though the activity for which a permit is sought is in no way detrimental to the survival of the species. In addition, there is no recognition of the unusual problems faced by circuses, zoos, menageries and other similar exhibitions.

The effect of the present form of Section 10(a) has been to create unnecessary inflexibility and to work hardships on circuses and other exhibitions which were not contemplated. For example, many exhibitions featuring endangered species travel outside the United States in the course of their tours, an activity which is not prohibited by Section 9(a)(1)(A). Similarly, many foreign circus acts featuring endangered species appear in the United States on a temporary basis, an activity which is not prohibited by Section 9(a)(1)(A). Also, many circuses, zoos and other exhibitions have had a practice of exchanging, selling or acquiring various endangered species to or from one another, thereby responding to the legitimate needs of various parties to balance the types and numbers of animals each party had in a timely and economic way. This activity is now prohibited by Section 9(a)(1)(F).

To obtain a permit for many of their customary activities, a circus or zoo must now demonstrate that the activity is for scientific purposes or for purposes of enhancement or survival of the species. In many cases this may not be demonstrated directly. These activities, however, are clearly consistent with the policies and purposes of the Act and with the Congressional finding that endangered and threatened wildlife are of "aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people. . . ." These activities generally involve only captive bred animals and do not generally change the use or habitat of any specimen. Thus, the Convention has recognized that these activities are not detrimental to the survival of the species by establishing special procedures under Article VII for the granting of permits, or the waiver of the permit requirements, in the case of captive bred specimens.

Articles III and IV of the Convention would in addition allow certain types of imports and exports where it is shown that the proposed activity would not be detrimental to the survival of the species. This provides flexibility in dealing with individual situations to avoid gratuitous harm while at the same time protecting the survival of endangered and threatened species. The proposed amendment to Section 10(a) would provide similar flexibility by granting the Secretary specific authority to deal with various situations as they may develop.

The proposed amendment to Section 10(d) of the Act would implement the proposed amendment to Section 10(a) by simplifying the permit process for circuses, zoos and other travelling exhibitions. The need for giving special consideration to circuses and other travelling exhibitions has been recognized already by the Convention. Thus, Article VII of the Convention authorizes waiving the requirements under Articles III, IV and V (such as that the export or import will not be detrimental to the survival of the species involved) in the case of circuses, zoos and other travelling exhibitions where the affected specimen was bred in captivity or acquired prior to July 8, 1975.

The rebuttable presumption established by the proposed amendment would exist only where the affected specimen was bred in captivity or was previously the subject of a permit granted under subsection (a) or (b) of this section with respect to a similar act and will be used only for zoological, educational, scientific or propagational purposes. Under these circumstances there is a reasonable basis for concluding that an otherwise prohibited activity will not operate to the disadvantage of an endangered species. In the case of a captive bred specimen, this would be consistent with Article VII of the Convention. In the case of a specimen which was previously the subject of a permit granted under Section 10 with respect to a similar activity, there has already been a determination that the activity is permissible and it should not be necessary to reiterate the entire substantiation process. Thus, under the proposed amendment where a circus has obtained a permit to import a tiger into the United States to participate in its annual tour, there would arise a rebuttable presumption with respect to that circus' request to take the same tiger into the Dominion of Canada during the course of the annual tour.

Senator FORD. Mr. Steele.

STATEMENT OF GEORGE STEELE, EXECUTIVE DIRECTOR, ZOOLOGICAL ACTION COMMITTEE, INC.

Mr. STEELE. Mr. Chairman, I am George Steele. I am executive director of the Zoological Action Committee, and we represent a great number of the zoological institutions, both private and public, of the United States.

I would just make one small comment summarizing my statement. We are exceedingly concerned over the approach the Department of Interior is suggesting in the new captive self-sustaining population approach, which has been billed as a method of streamlining the procedures for enabling zoological institutions to exchange captive-born populations within this country. The zoological community certainly agrees with the objectives of the Endangered Species Act, which would prohibit the taking of endangered species from the wild without permits. We certainly applaud that objective, and we think that there should be very detailed permit procedures for that.

However, quite simply, it is our contention that the present act, as it is being administered, discourages rather than encourages the captive breeding of endangered species. We simply think that qualified zoological institutions in this country should have the ability to freely exchange captive-born progeny between themselves. The CSSP approach of the Department of Interior, we contend, only increases the paperwork load, both for the zoological community as well as for the Department of Interior. And I think that there are those in the Department of Interior who would agree that one way they can improve their efficiency, rather than getting more money, is to reduce their paperwork load; and we would strongly suggest that attention be given in that direction, Mr. Chairman.

Senator FORD. Thank you very much.

[The statement follows:]

STATEMENT OF GEORGE E. STEELE ON BEHALF OF THE ZOOLOGICAL ACTION COMMITTEE

Gentlemen: I am George Steele, Executive Director of the Zoological Action Committee, Inc.—a national political action organization representing zoological institutions, public and private, and zoological suppliers, private wildlife breeders and individual citizens interested in preserving and promoting zoological institutions.

I appreciate the opportunity to appear before you and explain some of the problems we have encountered under the Endangered Species Act of 1973. Let me say first of all that the zoological institutions in this country are fully behind the goal of the Endangered Species Act to prevent the decimation of the world's wildlife by the commercial exploitation of endangered species. The prohibitions against taking animals from the wild without a permit and importing animals from abroad are praiseworthy and are fully supported by our members. But there is another problem in preserving endangered species that the Act has done little to correct, and that is the preservation of habitat.

Realistically, of course, there is very little a U.S. law can do to prevent the destruction of habitat of endangered species abroad. The only positive contribution that the U.S. can make in this area is to foster and promote the captive breeding of those species whose habitat is disappearing.

Then, in the event they eventually disappear in the wild, there will at least be a reserve breeding stock in this nation's zoos. This aspect of endangered species preservation is greatly hindered by the Endangered Species Act of 1973 and its enforcement by the Department of the Interior. Quite frankly, except in exceptional circumstances, zoos will go out of their way to hold an animal rather than go to the trouble to get an endangered species permit to ship it. Why should they go to the trouble to write to the Department of the Interior and have their qualifications judged from 2,000 miles away on the basis of a written application, wait several months to find out that they may then send an excess lemur to another zoo for breeding. Rather than go to the trouble, if they have enough lemurs of their own, they will just simply forget the whole thing and one less lemur is born. The Act is certainly preventing the taking of the lemurs from the wild, but it is doing nothing—absolutely nothing—to foster the breeding of lemurs in captivity.

To give credit where it is due, Interior has bent over backwards to be flexible in interpreting the language of the Act in certain areas but there is only so much that they can do. For instance, they have defined "commercial activity" to mean only trade for gain or profit between different parties. But this still prevents any zoo from selling an animal interstate to another zoo, even to recoup its expenses, even though the zoo could either give the animal away or sell it intrastate.

Another proposal of Interior's offers additional relief by broadening the definition of "enhancement of the survival of the species" which would allow zoos with surplus animals or nonbreeding animals to transfer those animals to another institution to improve the breeding environment at the originating institution. The narrowed definition of "commercial activity" and the broadened definition of enhancement of species will contribute to the ease by which an institution may gain a permit for a one-time transfer of an animal. But, I repeat, the permit process is still a deterrent, not encouragement, to the captive breeding of endangered species by qualified zoological institutions. Until some provisions are

made by which qualified zoological institutions may freely exchange endangered species among themselves, the breeding of such species are going to continue to decline. If all other things are equal, it is just as easy for the zoo to just forget the whole thing and keep the extra tiger or the extra lemur than it is to try to find another institution willing to undergo the permit process to receive it.

I am sure you will hear, if you have not heard already, that Interior's captive self-sustaining population (CSSP) regulations are the answer to the zoological institutions' prayer. We have been hearing this for months and must admit that we are less than enthused by what has turned out. Please understand that we appreciate their efforts but quite frankly we fail to see that the addition of more paperwork is going to solve any problems.

As we understand it, there are now 16 species proposed for CSSP status. Now, assuming these 16 species are eventually listed as CSSP animals, then zoos who wish to qualify as breeders of these species would have to apply for a permit. Now we have been assured by the officials in the Department of the Interior that a zoo would not require a permit for each species but only each category of animals that are CSSP. Now, as far as we can tell, there are at least 4 different categories of animals represented in those 16 species. There are pheasants, there are ducks, there are primates and there are great cats. That would mean that each zoo would have to apply for a breeder permit for each one of the four categories, which would only entitle them to trade with other qualified breeders of one of those same four categories. In addition, zoos would have to qualify any time any additional kinds of animals are added to the CSSP list, if in fact any more are. We would point out to the Senators as an aside that of the 16 species here, all were proposed either by the AAZPA's ISIS Committee or the American Game Bird Breeders' Cooperative Federation. None were proposed by the Department of the Interior. This new regulation will be a God-send to the private breeders of one or two species of pheasants. With one permit, they can freely interchange their birds with other similarly qualified breeders. But as far as we are concerned, it is going to make more paperwork for the general zoos than they presently have. In all honesty, Mr. Chairman, we would not recommend to any zoo that they attempt to qualify as a breeder of CSSP. Most zoos have not applied for more than two or three endangered species permits in the last two or three years. And yet here they are offered the dubious honor of being allowed a limited trade for two years in 16 species if they will file about four permits. I am afraid that Interior's well-intended proposal is offering the zoos nothing but more paperwork than they have now.

I would add also, Mr. Chairman, that we have absolutely no faith in the ability of the Interior Department to process the applications they would receive under this program with the efficiency they require. Either speed would have to give way to due consideration or due consideration would give way to speed. But either way, the permits are not going to be properly evaluated. It is a paperwork drill for the Department of the Interior. They may receive a lot of proper applications from a lot of qualified institutions who have sent a lot of information about their ability to breed animals. And there may even be a lot of permits issued and a lot of transactions will be reported back to Interior and it will look very good on paper. But not one bit of it will mean a thing because the sheer weight of the paperwork will prevent any possible critical evaluation. Here we are today, agonizing over the lack of progress that has been made in habitat preservation and we find Interior proposing a whole new paperwork drill to waste precious time, manpower and money. It is unlikely that there will ever be as much money as is needed, so we must therefore reduce Interior's expenses, not increase them.

We have a proposal which we believe could be implemented without additional legislation. But if additional legislation is required, we feel that it would be the appropriate time to bring it to your attention now since we believe that it can encourage the breeding of endangered species with considerably less of a paperwork burden on both Interior and the zoos, with no loss of protection for the animals.

We propose that all endangered species that are born in captivity as well as those held in captivity prior to December 28, 1973 for commercial purposes, be listed in a separate category as threatened species. Interior has already indicated in their CSSP regulations that a differentiation can be made between captive animals in the U.S. and those in the wild. If all pre-Act animals and those born in captivity would be listed under a special category as "threatened/captive population" they would continue to be under the Secretary's control, but could be regulated by a simpler process. The Endangered Species Act allows the Secretary to set up necessary regulations and control mechanisms over threatened species. But we envision that these regulations would permit free movement of such threatened species between qualified zoological institutions. Let me emphasize, however, that we still intend that an endangered species permit would be required

any time an institution wants to take an endangered species from the wild, or to sell an endangered species to parties outside the country or to any party who is not a qualified zoological institution.

Our proposal stresses both the overall quality of the institution as a general keeper of animals and the professional capabilities of the zoo director to make those fine decisions which Interior is trying to make from Washington by reading pieces of paper. Basically, what we would like to see is for qualified institutions to be able to transfer any captive-born endangered species to any other qualified institution, so long as a qualified zoological professional certifies to the Department of the Interior that the receiving institution is capable of caring for and handling the animal that is being transferred.

We believe that a qualified institution should be one that has not only adequate facilities, but also has qualified professionals able to use those facilities and who can judge the capabilities of other institutions. We expect of course that complete and accurate records on all such transfers would be made available to the Department of the Interior at the time of transfer and to the AAZPA's ISIS Committee.

There are several advantages to our proposal. The main one being that it would further the purposes of the Endangered Species Act by encouraging the breeding of captive endangered species. It would in no way permit unqualified or incompetent persons to get endangered species because only qualified institutions and qualified zoological professionals would be able to make transactions without a permit. It would in no way deplete the population in the wild since all persons, zoos or otherwise, would still require a permit to import animals from abroad or to take them from the wild. It would free Interior's permit division from the impossible task of trying to evaluate the competence of all the nation's zoos to take care of all kinds of animals based on numerous permits applied for. And the qualifications to hold a permit would be determined by those people most competent to make that decision—the zoological professionals. We believe that by the establishment of certain minimum standards for the zoological institution and by setting up clear standards under which a person would qualify as a professional zoological curator, that the Department of the Interior could remove much of the permit burden that it now faces for endangered species transactions without in any way affecting the enforcement of the Act.

Senator FORD. Ms. Newman.

STATEMENT OF MARIAN NEWMAN, WASHINGTON COORDINATOR, THE FUND FOR ANIMALS

Ms. NEWMAN. Mr. Chairman, my name is Marian Newman. I am Washington coordinator of the Fund for Animals. We are a national conservation organization. I am testifying here on behalf of Lewis Regenstein, who is unable to be here today, and I would like to comment on endangered species.

Because of a political decision made by the United States Departments of Interior and Commerce not to enforce laws to protect wildlife, the United States Government is dooming to extinction hundreds of rare animals. On December 28, 1973, a landmark piece of legislation, the Endangered Species Act of 1973, was signed into law. But nonadministration of the law has rendered it nearly useless.

Since the new Endangered Species Act was signed into law almost 2 years ago, a mere handful of species have been added to the United States Government's endangered list. Among the hundreds of animals that are unlisted, therefore unprotected by U.S. law, are some 175 species on appendix I—the most endangered category of the Convention on International Trade in Endangered Species of Wild Flora and Fauna. This international Convention was agreed to by the United States and by about 80 other nations in March 1973, and was ratified by the U.S. Senate on August 2, 1973. The treaty went into effect around July 1, 1975.

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Despite the fact that the United States was obliged by Federal law and international treaty to protect these appendix I animals, almost half of them are not on the United States' endangered species list. Nor has Interior begun enforcing the Convention by banning their import, thus leaving them vulnerable to continued exploitation. And some of the animals that are not on the list are, for example, the glacier bear, the clouded leopard, the marbled cat, the Caribbean monk seal—which might be extinct by now; it has not been seen in 10 years—and Asian elephant.

The Interior Department's administration of the Endangered Species Act has been so irresponsible that Russell Peterson, the chairman of the Council on Environmental Quality, sent a letter on February 3, 1975, to Interior Secretary Rogers Morton, charging that several policies being carried out by Interior are illegal. CEQ pointed out that in terms of proposed or adopted regulations for preserving kangaroos and grizzly bears did not provide the threatened species with adequate protection, and were not consistent with the letter or spirit of the Endangered Species Act of 1973.

The Department of State has also questioned Interior's violation of U.S. laws and international obligations. On April 16, Acting Deputy Assistant Secretary of State Lindsey Grant wrote to Deputy Assistant Secretary of Interior E. U. Curtis Bohlen urging Interior to comply with the Endangered Species Act and at the Convention by adding appendix I species to the endangered list by July of this year. Otherwise, he warned, these discrepancies would cause trouble for both of the Departments if they were not eliminated by July.

The National Marine Fisheries Service actively prevented Department of Interior biologists from adding to endangered species the green sea and the loggerhead turtles to the endangered list for almost 2 years. And in a January 4, 1974, news release, the Department of Interior proposed these species for the endangered list, and pointed out that the green sea turtle stocks in the Caribbean, once believed to number at least 50 million, now are estimated at less than 10,000. Reproductive potential may be destroyed in the near future if present levels are maintained. Soon after, the Fisheries Service stepped in, claimed jurisdiction over sea turtles, and under pressure from commercial interests prevented action from being taken.

In June of 1974, Howard Pollock, deputy administrator for the Commerce Department's NOAA, stated at a symposium on endangered species, "I see no reason in the world why the green sea turtle should not be placed on the list, and I am certain that it will be. I would assume some action will be taken in the next 2 or 3 weeks." Yet, 2 years and 4 months after the Interior Department's announcement, the turtles are still unlisted.

I would just like to say before I close, Mr. Chairman, that the three large species of kangaroos were added to the new threatened list just over a year ago. And now, the Interior Department is recommending that the importation of kangaroo hides be allowed once again—and it should be remembered that we were the largest importer of kangaroo hides in the world, importing between 1½ million and ½ million hides annually, which was the major reason why they became threatened species. And I am afraid that if they do allow them to be imported into this country again, they will perhaps become endangered or extinct.

Thank you, Mr. Chairman.
Senator FORD. Thank you very much.
Ms. NEWMAN. And I would like to submit this information.
Senator FORD. It is included in the record.
[The statement follows:]

STATEMENT OF THE FUND FOR ANIMALS

Mr. Chairman, and members of the committee: My name is Lewis Regenstein, and I am executive vice president of The Fund for Animals. We are a conservation and animal protection group that works to preserve wildlife, save endangered species, and promote humane treatment for all animals.

I appreciate the opportunity to appear here today to testify on the government's administration of the Endangered Species Act of 1973, an excellent piece of legislation for which this Committee deserves great credit. This legislation, and the endangered species problem, has been one of our major concerns for over four years. The administration of the Act was the subject of my Master's thesis in Political Science, and I have just had a book published on this subject, entitled "The Politics of Extinction."

Before summarizing my statement, may I ask that it be included in the hearing record in its entirety, along with some other selected material, including letters we have sent to the Departments of Interior and Commerce on this subject, and various articles and news releases describing the government's flagrant violations of this crucial law.

"During the past 150 years, the rate of extermination of mammals has increased 55 fold. If (these) exterminations continue to increase at that rate, in about 30 years all the remaining 4,062 species of mammals will be gone."—Dr. Lee M. Talbot, Senior Scientist, President's Council on Environmental Quality, Washington, D.C.

Because of a political decision made by the U.S. Departments of Interior and Commerce not to enforce laws to protect endangered wildlife, the U.S. Government is dooming to extinction hundreds of rare species.

Since 1600 A.D., over 228 species and subspecies of birds and mammals have become extinct. The vast majority of these exterminations have been the result of direct or indirect kiling (e.g., destruction of habitat) by man.

Today, it is estimated that an average of one or two species is now being destroyed every year. Scientists agree that over nine hundred species of higher animal life are now seriously threatened. The decisions made by governments in the next few years will determine which of these species survive, and which will disappear forever.

In the United States, about 112 species of native fish and wildlife are officially considered to be in grave danger of extinction, and are on the U.S. endangered species list, along with about 300 foreign species. But hundreds of other imperiled species are unlisted and thus unprotected. Moreover, the United States, as the world's richest nation, has for years provided the major market for live animals and luxuries made from wildlife products, thereby creating a demand that has been destroying much of the rest of the world's wildlife. In order to stem the massive killing of and international trafficking in rare wildlife, several years ago conservationists began working for legislation to protect native endangered species and close off the U.S. market to such wildlife, in the hope that this would lessen the economic incentive for much of the killing or capture abroad of some of these species.

On December 28, 1973, a landmark piece of legislation—the Endangered Species Act of 1973—was signed into law. The enactment of this remarkably strong bill followed a campaign of over seven years by conservationists to have such a law passed, which replaced the virtually toothless Endangered Species Conservation Act of 1969. The new law greatly broadened the concept of endangered, and gave the government much greater authority to protect rare species.

Under the law, the Commerce Department was given jurisdiction over most marine life (seals, whales, dolphins, porpoises, fish) and the Interior Department was given responsibility for everything else. The law generally prohibits the killing or capture in the U.S. of animals on the endangered list, nor can interstate trade in their products be allowed. By generally banning the import into the U.S. of foreign endangered species, the law helps foreign countries protect their wildlife.

But non-administration of the law has rendered it nearly useless. Since the new Endangered Species Act was signed into law almost two years ago, a mere handful of species have been added to the U.S. government's endangered list. Among the hundreds of imperiled animals that are unlisted, and therefore unprotected by U.S. law, are some 175 species on Appendix I—the most endangered category—of the Convention on International Trade in Endangered Species of Wild Flora and Fauna.

This international convention was agreed to by the U.S. and about 80 other nations in March, 1973, and was ratified by the U.S. Senate on August 2, 1973. The treaty went into effect around 1 July, 1975. Despite the fact that the U.S. is obliged by Federal law and international treaty to protect these Appendix I animals, almost half are not on the U.S. endangered list. Nor has Interior begun enforcing the Convention by banning their import, thus leaving them vulnerable to continued exploitation.

Some animals which are on Appendix I but are excluded from the U.S. list include:

The glacier bear, a small, bluish colored bear highly sought by trophy hunters. It is still legally hunted in Alaska ten months of the year, although only about 100 to 500 of these bears remain.

The clouded leopard and the marbled cat, two of the world's rarest cats.

The Caribbean monk seal, which is so rare that it has not been sighted in over ten years, and may be extinct.

The Asian elephant, which is known to be seriously endangered, but is still being imported into the U.S. This provides a drain on the remnant wild population, particularly since the normal way of capturing young elephants is to shoot the mother and any other members of the herd that are present.

Other endangered and threatened species that are unlisted, and therefore unprotected (most of which are on the Convention's Appendix II, the next most endangered category) include:

The Mexican wolf, down to less than 200 individuals, which sometimes wander into the U.S. to be shot by ranchers.

The Chimpanzee, perhaps man's closest living relative, which is seriously endangered due in part to the demand for "specimens" by medical laboratories, and pet and wild animal dealers in the U.S. Baby chimps are most actively sought, which are obtained by killing the mother and seizing the terrified infant. The Interior Department's Office of Endangered Species has prepared a report showing that the chimpanzee is in serious danger, but no action has been taken to protect it.

In response to earlier hearings, Interior has recently placed a few species on the endangered list, the first to be added since the Act was passed almost two years ago. Included in this group are the Cedros Island mule deer, of which the Interior Department estimates "less than a dozen" are left; the peninsular pronghorn antelope, depleted to the point—in Interior's own words—that "only two or three small remnant groups survive"; and the American crocodile, whose entire population of less than 350 includes only about eleven breeding females.

For some of these animals, Interior's belated action has perhaps come too late. Once an animal is down to less than a dozen or so, it is usually too late to save the species, for it has by this time already passed the point of recovery.

The Commerce Department has shown even less interest in the Act than Interior, and is yet to add a single species under its jurisdiction to the lists.

In order to prevent species from reaching this point of depletion, the law also created a new list of "threatened" wildlife animals that are "likely within the foreseeable future to become endangered throughout all or a significant portion of their range." Only about 9 species have been placed on this list, including the large species of Australian kangaroos and the grizzly bear. But Interior's regulations—while designed to limit the annual kill in Montana to 25 bears—would allow the state of Montana to continue selling about 1,000 grizzly hunting licenses each year, a figure which exceeds the total number of grizzlies remaining in the lower 48 states, and seems guaranteed to result in their annihilat on. Moreover, under pressure from the kangaroo hide industry, Interior also seems to be moving towards lifting its ban on the import of kangaroo skins, which had been flowing into the U.S. by the hundreds of thousands each year. We have learned that some Australian states plan to adjust their quotas of the number of kangaroos to be killed according to whether or not Interior's import ban is lifted. If the ban is lifted, this will drastically increase the number of these threatened kangaroos that will be killed in Australia. I will submit for the record some data on this

matter, including some very interesting correspondence between the Interior Department and officials of the kangaroo hide industry.

Much of the responsibility for the Interior Department's intransigence can be attributed to middle level officials in the Department's Fish and Wildlife Service, such as Associate Director Keith Schreiner, who have prevented or delayed the listing of countless species because of political pressure, economic considerations, or bureaucratic red tape. For example, big horn sheep in the western U.S. have been kept off the list because of pressure from the hunting/firearms lobby. Although hunting is a major threat to the survival of these animals, they are still eagerly sought by "sportsmen."

Schreiner was recently quoted in an Interior Department publication as saying that, at the current rate of progress, "it would take us 6,000 years to list the 200,000 full species of (plants and) animals that are thought to be threatened or endangered now." Interior is also recommending that Congress add weakening amendments to the Act, which would seriously undermine its potential effectiveness.

This general situation has been brought to the attention of Assistant Interior Secretary for Wildlife, Nathaniel P. Reed, and Lynn Greenwalt, Director of the U.S. Fish and Wildlife Service. Both officials have endorsed the "cautious," do-nothing approach, so as not to offend vested interests, such as the gun lobby, which are exploiting rare species.

Interior's policy has already had tragic and irreversible consequences, since it appears that several species of unlisted mollusks and crustaceans have recently become extinct. These obscure life forms are important not only as an indispensible part of the food chain and in maintaining the natural ecological balance. According to an Interior Department news release, they have recently been recognized as being able to produce antibiotics, tranquilizers, antispasmodics, and antiseptic chemicals in their systems. Scientists believe that these unique attributes can be used as models for the development of synthetic drugs. Thus, with the recent extinction of some of these creatures, a potential cure for cancer may have already been lost. Moreover, hundreds of endangered mollusks and crustaceans are still being kept off Interior's list, despite efforts by conservationists to have them protected.

To make matters worse, there are indications that Interior, under pressure from the gun lobby, may be moving towards removing the African leopard and the eastern timber wolf (found in Minnesota) from the endangered list, so that large-scale hunting and the importing of trophies can be resumed. Already, Interior has taken the first step in the delisting process, and has announced a Notice of Review of the status of these species.

In addition, Interior is in the process of removing the American alligator from the endangered list throughout much of its range, in part to allow commercial alligator killing. This will result in the resurrection of the now-moribund alligator hide market, which will bring about a return to large-scale alligator poaching wherever they are found.

The Interior Department's administration of the Endangered Species Act has been so irresponsible that Russell Peterson, chairman of the Council on Environmental Quality, sent a letter on February 3, 1975 to Interior Secretary Rogers Morton (who is now Secretary of Commerce) charging that several policies being carried out by Interior are illegal. CEQ pointed out that Interior's proposed or adopted regulations for conserving kangaroos and grizzly bears did not provide these threatened species with adequate protection, and were "not consistent with the letter or spirit of the Endangered Species Act of 1973."

The U.S. Department of State has also questioned Interior's violation of U.S. law and international treaty obligations. On 16 April, 1975, Acting Deputy Assistant Secretary of State Lindsey Grant wrote to Deputy Assistant Secretary of Interior E. U. Curtis Bohlen, urging Interior to comply with the Endangered Species Act and the Convention by adding Appendix I species to the U.S. list by July of this year. Otherwise, warned Grant, "these discrepancies will cause trouble for both our Departments if they are not eliminated before July."

And on 21 March, 1975, a letter organized by Senator Alan Cranston (D-Calif.) and signed by three other Senators—Warren Magnuson (D-Wash.), Philip Hart (D-Mich.), and Robert Byrd (D.-W.Va.)—was sent to Fish and Wildlife Service Director Lynn Greenwalt, expressing "serious and urgent" concern that Interior was not "pursuing the legislative intent of the Act and its mandates . . ."

The U.S. Department of Commerce has adopted an even firmer policy of virtually ignoring and not enforcing the Endangered Species Act. It has refused

to list some species of dolphins (or "porpoises") which are being wiped out by the hundreds of thousands each year by the U.S. Pacific tuna fleet, which intentionally nets entire schools of dolphins in the hope that yellowfin tuna will be found beneath them. Reports prepared by the Commerce Department's National Marine Fisheries Service (NMFS) show that one species of dolphin may be reduced by 30 to 80 percent, and that another may not be able to withstand further killing of this sort. Yet, NMFS Director Robert W. Schoning has refused to recommend these dolphins for the threatened or endangered list for fear that this will offend the powerful U.S. tuna industry.

NMFS has actively prevented Interior Department biologists from adding two Appendix II species—the green sea and the logger-head turtles—to the endangered list for almost two years. In a 4 January 1974 press release, the Interior Department proposed these turtles for the endangered list and pointed out that "green sea turtle stocks in the Caribbean, once believed to have numbered at least 50 million, now are estimated at less than 10,000. Reproductive potential may be destroyed in the near future if present harvest levels are maintained." Soon afterwards, NMFS stepped in, claimed jurisdiction over sea turtles, and, under pressure from commercial interests, prevented action from being taken. On 12 June 1974, Howard Pollock, Deputy Administrator of the Commerce Department's National Oceanic and Atmospheric Administration, stated at a symposium on endangered species, "I see no reason in the world why the green sea turtle shouldn't be placed on the (endangered) list and I am certain that it will be. I would assume some action will be taken in the next two or three weeks."

Yet, two years and four months after the Interior Department's announcement, the turtles are still unlisted. All during this period the U.S. has remained a major market for sea turtles products, and has continued to exert a tremendous demand for their slaughter. The Departments of Interior and Commerce have now published a proposal to list the tutles as "threatened" instead of "endangered," and to largely allow commercial imports to continue for at least two more years. But it is still questionable whether the actual listing will ever take place, and whether the proposed regulations will have any real effect in providing adequate protection to these endangered turtles.

The Washington, D.C. law firm of Hogan & Hartson is representing the Fund for Animals in an attempt to force Interior and Commerce to comply with the law and protect the species covered by the Convention before it is too late. As a result, some of these species have been "proposed" for the endangered list, but final action still remains in doubt. In the meantime, these species remain unprotected.

In numerous other areas, the government has been derelict. Although the Endangered Species Act provides protection to critical habitat essential to the survival of endangered species, Interior is yet to list any such habitat. Nor have any of the thousands of species of endangered plant life—such as certain orchids and cactus—been placed on the protected lists, even though the Smithsonian Institution has identified over 2,800 species and subspecies of endangered and threatened plants in the U.S. alone.

Nor has any real action been taken under Section 8 of the Act, which calls for Interior, through the State Department, to undertake financial and other assistance to foreign countries to help them protect endangered wildlife.

Other government agencies such as the Army Corps of Engineers, the U.S. Forest Service, and the Bureau of Reclamation, are causing more direct and rapid elimination of wildlife by destroying the habitat of endangered species, even though this is ostensibly prohibited by the Act.

Mr. Chairman, we are delighted that these hearings are being held. One Interior Department employee working on endangered species has commented that "if we get through those hearings unscathed, I fear the whole program is going to be dismantled." I therefore hope the Department's policies will be subjected to the intense scrutiny they deserve.

The new Endangered Species Act of 1973 is strong enough, if adequately enforced, to save many species of disappearing wildlife. Yet, despite the clear mandate of the law, countless species are going down the drain while indifferent government bureaucrats look the other way.

That completes my testimony, Mr. Chairman. Thank you again for the opportunity to appear here today.

Senator FORD. Colonel Graham.

STATEMENT OF LT. COL. RICHARD GRAHAM (RETIRED), U.S. AIR FORCE

Colonel GRAHAM. Mr. Chairman, I am Richard A. Graham, retired colonel with the U.S. Air Force. I have a statement that I presented to the Chair, and I would like if possible to have it entered.

Senator FORD. It will be included in its entirety as if read, Colonel.

Colonel GRAHAM. Thank you, sir.

I am concerned about the peregrine falcon. After listening to the testimony this morning of the myriad responsibilities that the Interior Department has under the act, it is only understandable that there is some confusion as to——

Senator FORD. Excuse me for interrupting, but were you in attendance when the question was proposed by the Chair to the Interior Department for Senator Jackson?

Colonel Graham. Yes, sir, I was.

Senator FORD. Proceed.

Colonel GRAHAM. I have, on behalf of the peregrine falcon, attempted to persuade the Interior Department for 7 years to take genetic samples of these birds to breed them in captivity, so that in the event—optimistically, in the future—that the environment is going to support these birds, we will have genetic representation that represents a geographic continuity of the North American continent. The various answers have been along 7 years later where we are finally getting to the problem.

The act has allowed the Interior Department to protect and control the various species, and I think that they do so in very good will. But the rapidity with which regulations and actions are forthcoming may be too late. I would like to make an observation that in 1973, for instance, a study was started on 14 adult breeding pairs in the Rocky Mountain area from New Mexico to Montana. These were the known breeding pairs at that time. In 1973, these 14 adults produced 3 young. In 1974, the 14 pairs had been reduced to breeding pairs, but they had a good year and produced 10 offspring. Approximately 22 to 24 would have been normal.

In 1974—excuse me, 1975—the 10 adult pairs were further reduced to 7, and produced 2 offspring. In this year, 1976, the 7 are reduced to 1 producing pair, which is producing thin-shelled eggs. Now, the Department of Interior may protect the peregrine falcon, but I am afraid they will protect it until the last one sails off into the sunset. I do not believe that the Department of the Interior, nor the President of the United States, may issue an edict to those prey species that these birds feed on, that travel to and from South America where insecticides are used—that are generally accepted to be the problem that is causing this bird to become extinct.

Among the population of citizens from Seattle to Bangor and from San Diego to Key West, Fla., we have a lot of falconers who are concerned individuals about birds of prey in general and the peregrine falcon in particular. These people have advocated a sport that they champion for throughout recorded history, and we have a lot of talent that could be used—that is a national resource in this country that could be adequately used—to help save a particular species.

This program and these people are maybe not available for the blackfooted ferret or certain quails and other species with which the Interior Department is concerned. But certainly, we do have people who can and have bred these birds. They are in the forefront, and these are people—the falconers and the falconer-biologist—who have actually bred these birds, and now represent a hope to save a gene pool from extinction. And hopefully, at such time in the future as when the agriculture and chemical interests provide us with insecticides that do the job for the farmer in this country and other countries and around the globe in the temperate regions, then we will have those species available to reintroduce into the area of origin.

I urge that the Interior Department take into captivity immediately, over the next several years, either through its own offices or through any corporation with the help of falconers and biologists, a gene pool that represents the geographic continuity of the North American continent. These offspring can be bred in captivity—or rather, these birds can be bred in captivity—and their offspring made available for reintroduction at a future time.

The Interior Department instead finds itself in the rather serious position of promulgating regulations that prohibit the falconer, who is breeding and wants to breed endangered species, from using the offspring of those birds for falconry purposes. It is generally recognized that birds used in falconry ultimately escape to the wild, and are going to augment the wild population. So this could not hurt the wild population. We talk about pre-act and post-act birds. If the Interior Department restricts those of us who are breeding falcons to those taken into captivity prior to the act, we only have a handful of these birds, and the gene that is represented is not sufficient to represent the geography of the North American Continent.

I had a study done by a young man in Berkeley, and it indicated that four unrelated pairs by F–4 generation would have something in the neighborhood of a 15 percent inbreeding potential. So that by restrictions, if they are continued, we may protect this bird from extinction through legislation, and the Interior Department will then provide a detailed report to the Congress as to why the bird died, and ask for further money to save other species. But I think that they get tangled up in just sheer weight of paperwork and bureaucracy, and I would like to see something done for this particular creature that can be done on a swifter basis. Thank you, Mr. Chairman.

Senator FORD. Colonel, your testimony is mighty good, and we may have a mutual friend. I got into Zack Terrell back here this morning, Pete Widener or his son—I think they are friends of yours.

Colonel GRAHAM. Yes, sir. They are friends of ours and our foundation that we have that is designed to breed these. I have a nonprofit foundation that we are attempting to breed these birds for that purpose.

Senator FORD. Well, he is a good friend of mine, and I am delighted that we can communicate through friendship.

[The statement follows:]

STATEMENT OF RICHARD A. GRAHAM

The intent and purpose of the Congress in passing The Endangered Species Act of 1973 seems clear enough. To save endangered wildlife and the habitat on which they depend for ourselves and future generations. The implementation of the Act

is quite complex. The Department of the Interior, executive agent for the Act, has over 100 animals on its domestic list and over 300 on the foreign list. Policies and regulations to deal with the various species must be comprehensive and complex. I appreciate the task facing the Department in implementing the purpose and intent of the Act.

I am concerned with the Peregrine Falcon and the various endangered subspecies of this race. I believe strongly that gene pools of the peregrine falcon should be taken into captivity which will genetically represent a geographic continuity of all peregrines on the continent of North America. Offspring will be available for re-introduction into the areas of parent stock origin. Self-sustaining captive populations hold out the hope that at such future time as the environment allows, genetically pre-adapted falcons will be available for release. I believe that the chemical and agricultural interests will develop insecticides that help our farmers and not prohibit normal reproduction of birds of prey in the wild. It is generally accepted that certain insecticides are in great part responsible for the problem of survival facing the peregrine falcon.

Captive breeding of peregrine falcons has been accomplished and is a reality. We now have the knowledge to breed these falcons by the hundreds and even by the thousands. Falconers were responsible for the first success in captive breeding a few short years ago. Today other falconers and falconer biologists are breeding more birds each year. Through these efforts the endangered peregrine falcon is being bred on a more routine basis. Establishment of self-sustaining captive breeding populations may be the last and best hope available to save this bird.

Regulations of the Interior Department are designed to protect the species of endangered wildlife. In its efforts to establish control of and protect the peregrine falcon the Department has run headlong into the falconers who have championed the falcon throughout man's recorded history. The Department finds itself in the curious position of putting out regulations which tend to stop this breeding activity or to de-motivate it by refusing to allow falconers to fly offspring of the endangered birds they are breeding. It should be pointed out that the majority of falcons flown by falconers are ultimately lost to the wild where they augment the wild population.

In conservations with the Interior Department representatives, one is told of the "intent of Congress" and reference is made to the "interpretation" given by the official in question of The Endangered Species Act. I believe the intent of Congress to be clear. That we save our wildlife populations. It is also very clear that falconers have led the fight to save the endangered peregrine falcons.

I ask that this Subcommittee amend The Endangered Species Act of 1973 and clearly state the intent of Congress as follows:

Under Exceptions, Section 10(a) Permits.—add after "of the affected species." . . . "It is understood that captive propagation and recreational use for falconry of endangered species is beneficial and may be permitted."

In consideration of this request it is pointed out that the Senate Committee on Commerce in its Senate Report No. 93-307 states on exemptions in the second paragraph of page 4 that "The Committee wishes to clarify that such exemptions may be granted to individuals with legitimate claims who breed such animal domestically, whether or not they are associated with an institution." In addition, I stand ready to provide the written endorsement of approximately one half of the Senators of the United States in support of my efforts and views towards saving the peregrine falcon and other birds of prey.

Senator FORD. Mr. Cooper.

STATEMENT OF TOBY COOPER, ON BEHALF OF DEFENDERS OF WILDLIFE

Mr. COOPER. I'm Toby Cooper speaking on behalf of Defenders of Wildlife. I'm here for John Grandy, who was here earlier and had to leave.

There are so many issues surrounding the Endangered Species Act, I think you need a staff at least as big as that of Keith Schreiner just to meet all the problems. There are a great many issues in our statement here. I wish we could discuss them all in detail but, obviously, there isn't time.

One of the main issues is the application of the concept of "critical habitat." Critical habitat is extremely important to endangered species because it provides the habitat requirements to sustain the species.

There has been an unfortunate tendency on the part of the Fish and Wildlife Service to misconstrue their concept of critical habitat. They apply a concept of critical habitat that simply isolates or sets aside a tiny area surrounding the existing population of an endangered species.

This restricts the ability of the Office of Endangered Species program to carry out the full intent of the act, which includes the concept of restoration of the endangered species.

It is pointless to designate critical habitat that simply isolates the remaining postage-stamp-sized area where a species is living, precluding expansion. Again, restoration is part of the act.

A very controversial case that's now nearing the crisis stage involves the California condor. The Interior Department published a critical habitat designation for Los Padres National Forest. This designation does not encompass all of the active nesting sites, roosting sites and activity areas of the condor.

As a result they have left an opening into which U.S. Gypsum Co. is attempting to place a phosphate strip mine. The mine represents a major industrial intrusion into the condor range.

The strip mine will, undoubtedly, have a major impact on the condors. The condors are very shy, very unaggressive and they are very highly influenced by this kind of development. Because the critical habitat concept was not properly applied from the beginning—restoration of the species was not considered—we now face the possibility of an industrial operation threatening the habitat of the critically endangered California condor.

As you know, there are only about 60 condors left. They reproduce very slowly. They form pairs and only attempt to raise young every 2 years. Because of the small population and the number of years required to reach sexual maturity, there is only the opportunity to establish a maximum of 20 breeding pairs.

So we have this phosphate mine proposal, supposedly not on the critical habitat but, nevertheless, still a major intrusion into the habitat.

The BLM issued a draft environmental impact statement in 1971 on this proposed mine, called the Pine Mountain phosphate lease application. Since that time, that draft environmental impact statement has increased in size six fold or more.

Also, since that time, the Endangered Species Act was passed. There were different laws and different guidelines when the first draft was written. Yet, the BLM refuses to reissue the EIS as a draft, in order to allow the Agency and the public to reexamine the situation in light of the new law, and in light of the changed circumstances. The whole situation needs a new look and yet they're pushing this final environmental impact statement through. The draft is supposed to be a decisionmaking document. The final is the decision. They cannot proceed this way and still conform to National Environmental Policy Act guidelines.

Over and above that, we learned just recently of an interesting situation. The Assistant Secretaries at Interior, in charge of BLM and in charge of the Fish and Wildlife Service, made certain agreements as to compromise measures involving the mining lease and the condor. They were apparently trying to make the best of both situations. That draft was sent to California for printing and when it came back there were deletions made. They found that the deletions were biased in favor of the mine and against the condor, and they will admit this if pressed. These deletions were selectively made, and were not authorized by Washington.

There was somebody, apparently—we can't make direct accusations of this nature, but this is what it looks like to the public—somebody out there in either the Fish and Wildlife Service or the BLM State offices who made promises to the mining companies. Now they're trying their hardest to keep them. The condor and the American public are the losers.

At the moment, this statement is being withheld.

So we bring this matter to your attention in hopes that someone can look into the problem in great detail. We hope that the BLM can be encouraged to reissue statement as a Draft, and that more public hearings can be held so we can build a record that truly reflects the plight of the condor. We must work toward a better resolution of the problem that is surrounding this critically endangered species today.

There are many other issues and many other examples in this statement that is now part of the record.

Concerning the sperm oil, we are still very strongly opposed to amending the act to allow sale of the oil. We recognize the hardships that are being inflicted upon these companies and upon the U.S. Government.

Nevertheless, the act, the law, was construed in the national interest. Every national interest program, whether it be a national park, marine mammals, endangered species, or whatever, carries with it certain costs. The endangered species program is a priority national interest. To reopen the markets in these whale products is a pointless measure. There aren't enough whales to go around to all the General Motor transmissions anyway.

To open the act simply increases the trade inappropriately, and increases the death of whales. All we can say is, let's try to make it right with the companies, let's try to make it right with the Government and recognize there are going to be some cost. This is the costs of a comprehensive endangered species program.

Thank you, that concludes our statement.

Senator FORD. Thank you very much.

Would you proceed?

[The statement follows:]

STATEMENT OF DR. JOHN W. GRANDY, IV, EXECUTIVE VICE PRESIDENT, DEFENDERS OF WILDLIFE

Mr. Chairman, Committee Members, my name is John W. Grandy, IV. I am Executive Vice President of Defenders of Wildlife, a major national, Washington, D.C. based, environmental organization. Defenders of Wildlife publishes the highly respected and acclaimed bi-monthly Defenders of Wildlife magazine and

engages in other activities designed to benefit and promote the welfare of wildlife and wildlife resources throughout the United States. To this end, Defenders testifiy upon invitation before Congressional committees such as this one, files legal actions with appropriate Governmental agencies, and participates to the extent possible in meaningful agency decision-making processes.

I appreciate the opportunity and invitation to testify on behalf of Defenders of Wildlife, the Sierra Club, and the New York Zoological Society.

We have been quite concerned with the Endangered Species Act of 1973. I personally began my involvement with this Act in working through available channels to advance the Convention on International Trade in Species of Wild Fauna and Flora. I participated in developing the language and concepts of the Treaty, both with the International Union for Conservation of Nature and Natural Resources and through the U.S. Department of the Interior and Department of State. Specifically, I participated by helping to formulate the Appendices of Protected Species as well as doing substantial work to communicate the purpose and objectives of various treaty provisions during the Convention.

Subsequently, upon invitation I was subtantially involved in developing the Endangered Species Act of 1973, working both with the Committee staff and its members. In short, I personally and Defenders of Wildlife as an organization have a long history of involvement in the Endangered Species Treaty and the Endangered Species Convention. We are quire concerned with implementation of both of these.

I would first like to commend the Department of the Interior for the positive actions that it has taken to implement the Endangered Species Act of 1973. This has been a time-consuming process, and the Department has had to feel its way gingerly along a course lined alternatively with egg shells and mines. In some ways implementation has proceeded adequately and we commend the Department and the Fish & Wildlife Service for actions in this regard.

THE ENDANGERED SPECIES CONVENTION

Notwithstanding the above comments, implementation of both the Endangered Species Convention and the Endangered Species Act of 1973 has not been handled in a manner responsive to the terrible urgency of survival problems confronting endangered and threatened species throughout the world. The Endangered Species Convention is a particularly sensitive issue in this regard.

The Convention went into effect on July 1, 1975. To date, however, nothing substantive has been done to implement the Convention. Scientific and management authorities required by the Convention have not been named. Provisions of the Convention are not, to my knowledge, currently being enforced, except where certain species covered by the Convention are also covered by the Endangered Species Act of 1973. Plans listed pursuant to the Convention have not been dealt with in a substantive and professional manner.

Historically, the United States led the world in creating a convention with global perspectives. The meeting which resulted in the final Convention was held here in the U.S. State Department Building. The Convention itself was, at the time, hailed as being a significant step forward. It can still be a significant step forward. However, the United States must once again exert the leadership role.

To date, the United States has not been leading. Quite to the contrary, the U.S. has dillydallied away valuable time and leadership initiative so that we now find substantial portions of the Convention are being ignored.

Furthermore, the U.S. Department of the Interior even had to be petitioned to place the Treaty's Appendix I species on our own endangered species list. This represents sheer negligence and illustrates the dismal priority our Government has given to implementation of this valuable treaty.

Defenders of Wildlife urges on behalf of itself, the Sierra Club and the New York Zoological Society, that the Endangered Species Convention be promptly implemented. We hope that this Congressional Committee, which has such an outstanding record in wildlife conservation, can determine why this Convention has not been adequately implemented by the U.S. Government, and we further hope that this Committee can help to provide the necessary stimulus to have the Convention properly implemented.

IMPLEMENTATION OF THE ENDANGERED SPECIES ACT OF 1973

Unfortunately, delays in implementation of the Convention are mirrored by delays in implementation of the Endangered Species Act of 1973. This is an important law. Its meaning was crystal clear to the U.S. public and to the U.S.

Congress. We need not reiterate all the reasons why it was enacted—it was enacted because of the broad public recognition for the plight of many declining species.

As I stated earlier, implementation has been a time-consuming process. The Fish and Wildlife Service has been required to explore slowly through unknown territory in terms of implementing this law. However, the necessity for caution and careful planning in implementing the law does not excuse the obvious flaws which have occurred.

Problems of implementation of the Act inevitably may be divided into two portions: the substantive interpretation of the Act with the consequences of that interpretation; and an internal implementation problem.

I will deal with the second problem first.

There have been numerous delays in implementation of the Act. It is true without question that the Act had to be implemented methodically and with care and feeling. However, inordinate delays are not appropriate. For example, roughly one year from the date of enactment of the Endangered Species Act of 1973, the first listing of a species under the new law was made. This was the kangaroo, a foreign species. The first American species to be proposed was the grizzly bear and this was not accomplished until January 2, 1975, more than a year after enactment of the law. Unfortunately, this kind of delay more closely resembles neglect. I cannot place blame for this, nor would I if I could, but a pattern has developed over time, which is distressing in many ways and should be promptly and concisely dealt with by those administering the Fish and Wildlife Service and the endangered species program.

I am reluctant to mention one additional point concerning an internal implementation problem but I will mention it. This relates to the recurrent rumors outside of the Fish and Wildlife Service and outside of the Department of the Interior. There are widely spread rumors of personnel and morale problems within the segment of the Fish and Wildlife Service which handles the endangered species program.

Morale problems in any organization are hardly new. Wherever there are a group of people, there are generally morale problems. However, the surprising and distressing aspect of these problems is that they have been heard often by members of the Washington environmental community and even the environmental community in other portions of the country. In fact, the morale problems and personnel problems were to one degree or another involved in the Jack Anderson column of last March, which soundly rebuked certain people within the Office of Endangered Species. While I do not suggest that is an appropriate subject for Congressional action, I believe it must be brought to the attention of the appropriate committees of Congress if for nothing more than for their information.

Perhaps the recently agreed upon "re-organization plan" for the Office of Endangered Species in the Fish and Wildlife Service will help cut down morale problems, and thus help to increase the chances for survival of endangered and threatened species. If these things do not occur, however, this Committee may wish to take appropriate action to insure that the welfare of endangered species is protected.

In order to look at the substantive problems relating to implementation, I must first discuss the basic assumptions inherent in the Endangered Species Act of 1973. The law, as I stated, was timely, important and clearly understood by the public. It was and is a law to guarantee the protection and survival of endangered and threatened species throughout the United States. Its underlying goal was not only to insure survival, but to insure to the extent possible, the restoration, I repeat, restoration, of endangered and threatened species to a point where they are no longer endangered and threatened. This is clearly stated throughout the law, but most notably in the definition of conservation (16 USC 1532 (2)). In addition, the apriori assumption is that endangered and threatened species and others whose status is questionable are to be given the benefit of the doubt with respect to protection under the Endangered Species Act. The law is succinct and clear on this point, and vagaries in bureaucratic interpretations that do not support these goals are without foundation in the law.

Within that framework, the Fish and Wildlife Service and the National Marine Fisheries Service, and, in fact, the U.S. Government, with the exception of the President's Council on Environmental Quality, have made serious errors in implementing the basic provisions of the Endangered Species Act of 1973.

The delays involved in adding species to lists of endangered or threatened species are a continuing problem. I alluded to this previously as an internal problem, which is partially true. However, another portion of the problem seems

to relate to implementation and interpretation of substantive provisions of the Act.

The Act states that the Secretary shall use the best scientific and commercial data available in deciding whether or not to list a species.

Delays have reportedly occurred in the listing process due to interpretations of the Act which essentially suggest that the Secretary wants all data that it may be possible to obtain (ever). This is contrary to the letter and spirit of the Act. The basic spirit of the Act is to give species whose status is questionable the benefit of the doubt so as to insure their preservation. And the Act requires use of only the best available data—not irrefutable proof based on all data that may ever be gathered.

In short, the Secretary and those administering the Act must move with more vigor and less hesitation and delay in protecting species that seem to qualify for protection. If we make an error, we only have succeeded in unnecessarily "saving" a species.

Another problem concerns the provisions regarding critical habitat (16 USC 1536) of threatened and endangered species.

The Fish and Wildlife Service currently seems to be viewing critical habitat as that last-ditch area in which the last five to ten animals of any species will survive. However, critical habitat relates back to the basic assumptions of the Act—to the goal of restoration. In that vein, critical habitat must be viewed as not just the habitat necessary to continue the existence of the remnants of any given species, but must be defined as that habitat which is necessary and critical to the survival, health and subsequent restoration of a species. Congress, in my view and in the view of many, did not intend that all endangered and threatened species would in fact be endangered or threatened forever, nor did they envision critical habitat as being that habitat of postage stamp size necessary to continue the survival of the last handful of any species.

Substantively, it is impossible to tell from day to day what habitat will be critical to the restoration and welfare of a species. The fact is that habitat necessary for survival and restoration must be considered critical until the agencies which are fostering and promoting development can prove that such habitat is not critical and necessary for the survival, welfare and subsequent restoration of the species. Without this, the whole meaning of Section 7 (16 USC 1536) and the meaning of the Endangered Species Act of 1973 will be in jeopardy. The alternative presupposes an ever-expanding list of endangered and threatened species with virtually no chance for restoration.

It is clear that, in addition, the Congress envisioned a broad and comprehensive review program relative to the proposals to modify, change, or destroy habitat of any endangered species. As a practical and procedural matter, this review process should have been and should be incorporated into the NEPA Environmental Impact Statement review process. I am certain that this could be easily and quickly accomplished by an informal understanding between the President's Council on Environmental Quality and the U.S. Department of the Interior. Such a review process would incorporate detailed and substantive considerations of endangered species problems in the review of the environmental impacts of various federal projects. Unfortunately, to date the Interior Department has apparently not taken the initiative to accomplish this objective. Those portions of the Endangered Species Act dealing with habitat preservation are being incompletely implemented and badly compromised as a result. Perhaps the best example of these problems is the critically endangered California Condor.

SPECIES PROBLEMS

The status and situation of the California Condor merits close attention.

The entire breeding range of the Condor is in the Los Padres National Forest, an area under the threat of prospecting permits and pending phosphate leases, ultimately under the control of the Bureau of Land Management.

On July 12, 1971, the U.S. Bureau of Land Management, issued a draft environmental impact statement on the proposal to mine phosphates in the Los Padres. The statement was about 30 pages long.

Now, however, the BLM is preparing to file a final impact statement that is almost 10 times as long as the original. Such a final impact statement would make a mockery of the environmental impact statement process.

The statement has been more than four years in preparation. In the intervening period, laws such as the Endangered Species Act of 1973 have been passed. The public should have had the ability to comment substantively with reference to the Endangered Species Act, the Condor, and the critical habitat of the Condor.

None of this has been possible, and BLM's action at this point represents a serious breach of public faith.

Defenders of Wildlife protested this procedure. The BLM responded that it would hold a public hearing in California on the final impact statement. Defenders considers this procedure to be deficient in supporting the public interest. Perhaps, if additional hearings were to be held, if the public comment period was to be extended (to a minimum of 60 days, instead of 30), and if a permanent record was to be made of all comments, the provisions of NEPA could essentially be fulfilled. However, absent this kind of extraordinary procedure, the public interest looks like a sure loser.

But the issue is more complex, and apparently more sinister than just an attempt by BLM to bypass the public interest and procedure inherent in the National Environmental Policy Act of 1969.

On December 15, 1975, the U.S. Fish and Wildlife Service published proposed boundaries of critical habitat for the California Condor as designated under Section 7 of the Endangered Species Act (see attached). But, they were published in a way that was incomprehensible to the public, i.e., a series of meets and bounds interpretable only after a lengthy map-making session. What the critical habitat designation failed to indicate as well, was that the critical habitat excluded nesting and loafing sites for the Condor which conflicted with the proposed phosphate lease. In addition, the proposed boundary of the critical habitat for the Condor is contiguous with the boundary of the phosphate lease for about one and one-half miles, an amazing coincidence. Not surprisingly, the nesting and loafing sites for the Condor which are not included in the designated critical habitat would have led to conflicts with the proposed phosphate lease. Mr. Chairman, this kind of political biology is a sham which threatens the integrity of the entire endangered species program.

Further, the Deputy Assistant Secretary of Interior, Bohlen, is now apparently supporting the critical habitat designation as it stands (see attached letter).

Meanwhile, the Fish and Wildlife Service is apparently following Bohlen's instructions and allowing BLM to finalize a lease proposal through the final impact statement process, without so much as lifting a finger in defense of the Condor or making any motions to protect the undesignated but nonetheless, critical habitat for the California Condor.

This incident obviously exposes the normal rhetoric of the Fish and Wildlife Service since it is obvious the Fish and Wildlife Service, through this procedure, is demonstrating a singular lack of concern for the remaining 40–50 birds of this species.

The regulations surrounding listing of endangered and threatened species are also of concern to Defenders of Wildlife, the Sierra Club, and the New York Zoological Society. Two species to which I refer particularly are the kangaroo and the grizzly bear. I have attached to my statement a letter from the Chairman of the President's Council on Environmental Quality (CEQ) to the Secretary of the Interior relative to these two species. Primarily, the problems, which have only partially been solved, again concern the basic interpretation of the Endangered Species Act.

Both with respect to the kangaroo and to the grizzly bear, the Fish and Wildlife Service promulgated regulations which, at least initially, envisioned killing a threatened species on a sustained yield basis. This is entirely contrary to the spirit and letter of the Act. The definition of conservation states essentially that only in "extraordinary cases," where population pressures within an ecosystem cannot be relieved by other means, may regulated taking be allowed. No doubt, the "extraordinary case" clause was prompted by a desire to insure that any allowed regulated taking would occur only when there were no alternatives to such taking and therefore any such taking would constitute a benefit to the species. This is entirely logical and in keeping with the spirit and mandate of the Act. However, there is clearly no logic in holding annual hunts on threatened and endangered species, particularly not programs of a commercial nature such as those envisioned with the regulations pertaining to the listing of the kangaroo as a threatened species. To some extent, the problem of "taking" was alleviated when, in the final rulemaking, proposing the listing of the grizzly bear as a threatened species, the Fish and Wildlife Service, to one degree or another, did make an "extraordinary case" within the meaning of the Endangered Species Act of 1973. This extraordinary case, while being somewhat ill-defined, did, absent legal challenge, comply with the requirements of the Act.

Now we find, however, that the Interior Department's compliance with the "extraordinary case" clause of the law was apparently only a short-lived diversion, not a meaningful program. On February 23, 1976, the Fish and Wildlife Service

Act of 1973. Not only has the Fish and Wildlife Service put itself in the position of encouraging the commercial slaughter of threatened species, but the Fish and Wildlife Service has also avoided making the "extraordinary case" that populations of kangaroos cannot be relieved in any other manner but by regulated taking. The reason seems obvious; the killing is being condoned, in response to commercial pressure and the "extraordinary case" cannot be made because there are too few kangaroos.

Such an "extraordinary case" must be made. It is entirely logical that the language found in 16 USC 1532 be present. We cannot envision annual regulations allowing the killings of threatened species for no substantial reason other than pressure from private economic interests. Sport or commercial hunting, some may argue, has not regularly been the cause of a species becoming extinct or threatened; however, when a species is threatened or endangered, it does not follow logically that one can open a hunting season on such species.

PUBLIC LANDS

Defenders of Wildlife and the other organizations that I am representing today consider that U.S. Department of Interior's current inaction with respect to public lands and endangered or threatened species represents a serious continuing breach of public faith and the public trust. Beyond and combined with the threatened species issue, the public lands may represent the most distasteful practice of the Department of the Interior.

The letter of the Chairman of the President's Council on Environmental Quality stated with accuracy and succinctness the point of the public's right to the public's animals on public lands. Specifically, CEQ suggested that endangered and threatened species should not be taken for any reason, including depredations, except in cases involving human health and safety and cases involving the "extraordinary case" clause, to which I have already alluded. The public generally and numerous public service organizations have stated this and supported CEQ's position.

The Interior Department, however, in promulgating final regulations with respect to the grizzly bear avoided entirely the issue of public lands and ignored the interpretation of the President's Council on Environmental Quality. Specifically, the Interior Department's regulations concerning the grizzly bear (reportedly contrary to staff recommendations) tend to treat public lands like private ranches. This is a travesty!

When questioned relative to the reasons for not enforcing the public interest on public lands, in terms of protecting threatened species, the Interior Department has responded that they expect this matter to be handled under the critical habitat regulations. While it is probably appropriate to consider all areas of the grizzly bear range as critical habitat, thus taking in the public land areas with which I am currently concerned, the issues of critical habitat and public land are separate and distinct. One issue relates to critical habitat and express requirements within the Act. The critical habitat issue in short would apply to public as well as to private lands. If habitat is critical, it is designated as such pursuant to Section 7 of the Act.

However, the public land issue is entirely separate and distinct; such land is held for the public as a public trust and the public has rights with respect to it. The President's Council on Environmental Quality made that quite apparent and clear, as did the public. It is the duty of the Interior Department to see that the public interest is supported; I urge this committee to take whatever actions are necessary to see that the Interior Department upholds this duty.

AUTHORIZATION

We all know that the endangered species program, in both the Interior and Commerce Departments, has suffered from lack of funding. We are fully aware that additional money must be allocated to species recovery and restoration, land acquisition, Federal-State cooperation, and law enforcement. The organizations that I am representing are also convinced that additional personnel must be assigned to these agencies if the Endangered Species Act is to have a chance of being properly implemented.

Specifically, we urge that the endangered species program in the Interior Department be allowed an authorization of at least 20 million dollars and a personal ceiling of three times the current ceiling of about 160 so as to allow development of the optimum program. Further, we urge that the Commerce Department be allowed an authorization of at least 4 million dollars. Adequate authorizations and appropriations are obviously necessary if we are to have a chance of having the Act work properly.

However, as the foregoing portion of my statement indicated, many problems concerning implementation of this Act are not caused by lack of funding. In other words, funding is not the total answer.

Thus, along with increasing the authorization, we urge this Committee to direct that the obvious flaws in implementation of the Act be corrected. In addition, to urge this Committee to continue to take a strong and positive role in overseeing the implementation of this important law.

In conclusion, I commend the Fish and Wildlife Service. They successfully begun to implement an important and meaningful law. But, the Fish and Wildlife Service must do a better job. The Service must divest itself of the quagmire of inordinate delays in which it has become involved. It must throw away political concerns and concerns of offending special interest groups and put the intent of the law and the intent of the public first and foremost. That is, the Fish and Wildlife Service must comply fully with this law so as to save and restore endangered and threatened species. I hope this Committee can, as it has in the past, aid in attaining that goal.

Thank you, and I will be happy to answer any questions you may have.

DEFENDERS OF WILDLIFE,
Washington, D.C., February 6, 1976.

Hon. RUSSELL W. PETERSON,
Chairman, President's Council on Environmental Quality, Washington, D.C.

DEAR MR. PETERSON: Enclosed is a letter to the Director of BLM on a potentially serious conflict between mining claim location and the Endangered Species Act.

Specifically, we are aware that BLM is prepared to issue an Environmental Impact Statement on the Pine Mountain Phosphate Lease Application in Los Padres National Forest, California, which was initially issued on July 12, 1971.

Since then, of course, endangered species protection has become a national goal with passage of the Endangered Species Act of 1973. For the public to comment properly on this EIS, the document should be reissued in a form that reflects such changes.

Further, the Fish and Wildlife Service has only recently (December 16, 1975) published a proposed determination of critical habitat for the California Condor. Not only does the critical habitat closely approach the mine site, but the habitat boundary runs contiguous with the lease application boundary for some distance. Frankly, we are astonished at the configuration of the critical habitat proposal which both abuts the mine site and excludes some apparently important condor nesting, roosting, and activity sites.

We trust you take note of this issue, and that you will help to insure that every opportunity is available to consider the needs of our 60 remaining California Condors in the decisions on mining in Los Padres. Specifically, based on the changes involved in the draft EIS and the inordinate delay involved in producing a final statement, we hope that CEQ will ask that another draft statement be issued.

Sincerely,

JOHN W. GRANDY IV,
Executive Vice President.

Enclosure.

DEFENDERS OF WILDLIFE,
Washington, D.C., February 6, 1976.

Mr. CURTIS J. BERKLUND,
Director, Bureau of Land Management, U.S. Department of the Interior, Washington, D.C.

DEAR MR. BERKLUND: In our recent review of the status of endangered species in the United States, we have noticed that more than four years ago, specifically on July 12, 1971, the Bureau of Land Management (BLM) filed a draft Environmental Impact Statement (EIS) concerning phosphate mining in Los Padres National Forest, California, the area containing the sole remaining breeding habitat for the endangered California Condor.

BLM staff and others have informed us that substantial revisions have been made to that draft EIS; in fact, the revised statement is apparently six times as long as the original. Further, laws which should substantially affect the content of the EIS have been enacted since the draft EIS was first issued. Specifically, and most importantly, we refer to the Endangered Species Act of 1973, (16 U.S.C. 1531 et seq. (1974)), which became law on December 27, 1973.

Because the critically endangered California Condor's sole remaining breeding habitat is within the Los Padres National Forest, it follows that the California Condor may be significantly affected by phosphate mining in the Los Padres. The Endangered Species Act of 1973 requires that the Secretary of the Interior consider in his decision making the effect Federal agency activities will have on the existence and habitat of endangered species listed pursuant to Section 4 of the Act. These considerations should be discussed in the EIS. Further, the public should have had an opportunity to comment on proposed phosphate leases and proposed prospecting permits in the context of endangered species protection. The public was unable to address these issues in comments on the original draft.

Noting this, and noting the inordinage delay in preparation of a final statement, we hereby request that the BLM, prior to taking any action in this regard, prepare and circulate for public comment another draft EIS on the proposed phosphate mining permit for Los Padres National Forest. Comments on a new draft EIS, updated so as to reflect the present state of knowledge and the new law, may affect the actions proposed for Los Padres National Forest, will assist you in making a decision, and will bring these proceedings more securely into the framework of NEPA.

There is ample precedent for the procedure we have outlined. Numerous draft impact statements have been reissued in response to public comment. And, we seriously question that a decision based on an inadequate final Environmental Impact Statement would meet the requirements of the National Environmental Policy Act.

We look forward to your reply.

Sincerely,

JOHN W. GRANDY,
Executive Vice President.
RUBY I. COMPTON,
Natural Resources Defense Council.

DEFENDERS OF WILDLIFE,
Washington, D.C., March 10, 1976.

Hon. THOMAS S. KLEPPE,
Secretary, Department of the Interior,
Washington, D.C.

DEAR MR. SECRETARY: On February 6, 1976 Defenders of Wildlife and the Natural Resources Defense Council wrote the enclosed letter to the Director of the Bureau of Land Management, Curtis Berklund, requesting a new draft environmental impact statement on the problems of the California Condor and the Pine Mountain phosphate lease in the Los Padres National Forest.

The California Condor's problems are indeed serious and confusing. They need to be enumerated in a draft environmental impact statement which reflects the current situation with respect to phosphate leases, prospecting permits, critical habitat, and the national objective to save the California Condor.

To date, we have not received a reply to our letter. Indeed not only have we not received a substantive reply to our letter, but we also have not received an acknowledgement that the letter was received. This situation is most unfortunate and we hope that you can look directly into this matter and assure us that the public interest in protecting our endangered species is being upheld.

We thank you for your attention to this matter.

Sincerely,

JOHN W. GRANDY,
Executive Vice President.

Enclosures.

DEFENDERS OF WILDLIFE,
Washington, D.C.

Mr. LYNN GREENWALT,
Director, U.S. Fish and Wildlife Service, Washington, D.C.

DEAR MR. GREENWALT: This letter concerns the proposed critical habitat determination for the California condor as published in the Federal Register (Vol. 40, No. 242) on Dec. 16, 1975.

We are concerned that a very serious discrepancy exists which jeopardizes the condor and undermines the credibility of the critical habitat determination process.

Only when the published coordinates are transferred to a map do the conflicts emerge. The habitat boundary abuts and runs contiguous with the boundary of the Pine Mountain phosphate lease application for a distance of about 1 and 1½ miles. Further, we believe some important areas of condor activity and several roosting and nesting sites have been left out of the critical habitat determination.

Frankly, at this point we have very little confidence in the critical habitat determination as published by the Fish and Wildlife Service on Dec. 16. A Draft Environmental Impact Statement was first issued on the Pine Mountain phosphate lease application by the BLM in 1971. In this light, it is unbelievable that the critical habitat could have been drawn objectively, yet in such a way as to delete certain areas of obvious importance to the condor population, while at the same time conforming identically with certain boundaries of a mining lease application site.

Our main concern is with the critical habitat determination process. Given only a public notice such as the Federal Register notice of Dec. 16, the public would have no way of knowing if a proposed habitat contains the essential habitat requirements of the species in question. Further, in this case, the public would have never observed that the habitat had been drawn contiguous to a pending mining claim, and that important nesting, roosting and activity sites of the condors had been deleted from the proposal.

The Fish and Wildlife Service, we firmly believe, has a responsibility to publish all relevant information on such matters if the public is to participate in the decision-making process on a rational and informed basis.

Future publications of critical habitat determinations should include maps of critical habitat proposals, instead of coordinates which have no meaning to the public and offer no perspective of geographical relationships or size. Further, it should be stressed that potential conflicts, such as the Pine Mountain phosphate lease application site, should be included on critical habitat maps so that the public will be made aware of all the environmental factors surrounding the efforts to protect and restore our endangered species.

Our very urgent request is that you re-issue the proposed critical habitat determination for the California condor in the Federal Register, including a map illustrating the relevant features of this proposal, potential conflicts and other habitat requirements of the condor including nesting and activity sites.

We hope you will improve the condor proposal immediately, and that you will revise the procedures for all future publication of critical habitat determinations.

Thank you for your help in this important matter.

Sincerely,

TOBY COOPER,
Wildlife Programs Coordinator.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., Apr. 20, 1976.

Mr. T. DESTRY JARVIS,
Administrative Assistant, Parks and Conservation, National Parks and Conservation Association, Washington, D.C.

DEAR MR. JARVIS: This responds to your recent letters on behalf of the National Parks and Conservation Association concerning the proposed "critical habitat" for the California condor.

We regret the misunderstanding concerning the proposed determination of critical habitat for the endangered condor in relation to the proposed phosphate mining leases in the Los Padres National Forest. The boundary between the two coincide for less than 2 miles along a section line. In both cases, this section line was used as a convenient reference line for lack of a road or other definite boundary. The fact that the two boundaries join at this point was coincidental. The two lines coincide on a ridge which extends outward like a peninsula from a larger block of habitat. The ridge drops in elevation at the point where the line was drawn. The lower part is not considered condor habitat.

The proposed condor critical habitat boundary at this point was first delineated approximately 9 years ago by Mr. Fred Sibley, our Condor Biologist at the time, in response to a decision by the U.S. Forest Service to avoid human activities which would conflict with the condor. Mr. Sibley set distance standards for human activities around nest and roost sites, and drew the boundaries accordingly. The California Condor Recovery Team had no new data to suggest that a change was needed in the proposed critical habitat determination.

Establishing distance standards to protect wildlife from human interference is a difficult task. Such factors as differences between individuals within a wildlife population, topography, atmospheric conditions, and types of activity such as roosting, feeding, and nesting make it impossible to establish precise standards.

We are taking a hard look at the critical habitat proposal, and would welcome any new data which may help establish adequate buffer zones between condors and various human activities. The proposed phosphate mine, although it may not fall within the area proposed as critical habitat, may nevertheless adversely affect condors or their habitat due to noise, air pollution, or other factors. This is a matter which is currently under consideration.

We might add that the proposed mine site itself has few cliffs or coniferous trees that could be used for condor nesting or roosting. It has no known condor bathing pools, and is paralleled on both sides by well traveled roads (one a State highway, the other a forest recreation road). In itself, it is not critical as shown by the only available condor records. There are many records from inside the proposed critical habitat area; however, there is only one record of a condor within the lease are itself, and there are a few scattered records (all of flying birds, no roosting or other regular use sitings) around the near perimeters of the lease area. These records can be documented by date, place, and observer.

I appreciate your comments, and hope this information is helpful. If we may be of further assistance, please contact us.

Sincerely yours,

CURTIS BOHLEN,
Deputy Assistant Secretary for Fish and Wildlife and Parks.

EXECUTIVE OFFICE OF THE PRESIDENT,
COUNCIL ON ENVIRONMENTAL QUALITY,
Washington, D.C., February 3, 1975.

Hon. ROGERS C. B. MORTON,
Secretary of the Interior,
Washington, D.C.

DEAR MR. SECRETARY: On December 30, 1974, notice of rule making appeared in the Federal Register regarding the threatened kangaroos. Similarly, on January 2, 1975, notice of proposed rule making appeared in the Register regarding the grizzly bear. This letter represents the Council's comments on those two actions.

We commend the Department of the Interior for taking these two actions. We realize that both have been highly controversial and there have been numerous delays and false starts. With these two actions, the Department is taking its first steps in public implementation of the Endangered Species Act of 1973, which was an important component of the Administration's Environmental Program. As a consequence, these two actions take a considerable significance as potential precedents.

In that regard, elements of the actions concern us greatly, particularly in light of the intent and substantive provisions of the Act.

Section 4(d) of the Endangered Species Act requires the Secretary of the Interior to promulgate "such regulations as he deems necessary and advisable *to provide for the conservation of such (threatened) species.*" (Emphasis added.) Conservation is defined, *inter alia*, as ". . . to use . . . all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter (the Act) are no longer necessary. Such methods and procedures include . . . research, census, law enforcement, habitat acquisition . . . and, *in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking*" (16 U.S.C. 1532) (Emphasis added.)

This language clearly restricts the use of regulated taking to the "extraordinary case" where population pressures cannot be otherwise relieved. In the absence of facts which clearly establish that the population pressures cannot be relieved in any other way, there would appear to be no basis for legally valid regulations on regulated taking. Also, the principal language establishes the goal of other regulations, to be promulgated, as the restoration of species to a non-threatened or non-endangered status.

In this regard, the regulations promulgated regarding the three species of kangaroo are not consistent with the letter or the spirit of the Endangered Species Act of 1973. The regulations purport to allow importation of taken kangaroos when (1) a sustained yield program is established that (2) is not detrimental

to the survival of the species. Neither the "sustained yield program" nor the "not detrimental" test meet the statutory criterion, showing that population pressures cannot be otherwise relieved. Thus, we believe that the regulations should be revised or interpreted so as to be in keeping with the mandate of the Act.

The rules submitted with the proposed listing of the grizzly bear are also troublesome. One portion of the proposal indicates that de facto regulations will be promulgated which allow the taking (mostly by sport hunting) of up to 25 bears per year in the Bob Marshall Ecosystem. Again, in our view, the Secretary must first fulfill the statutory burden by showing that the proposed taking by hunting will be the "extraordinary case" which follows substantial attempts to relieve population pressures by other means. In our view, this test, again. has not been met and we believe that the regulations and proposal for final action should be revised accordingly.

One other portion of the proposed regulations concerning grizzly bears is also of special concern to us. The regulations pertaining to listing of grizzlies in the Yellowstone ecosystem state that depredating bears may be taken. Similarly, the de facto regulations for the Bob Marshall Ecosystem state that nuisance (including depredating) bears may be taken.

We feel that the regulations in both cases should clearly differentiate between bears causing depredations on public and on private lands. On public lands, no threatened grizzly bears should be taken except for clear reasons of human safety.

Grizzly bears, and in fact all endangered and threatened species, are valued highly by the people of this nation. Public lands are lands held in trust for all Americans, not just one or another special interest group.

Certain uses of these lands require specific regulation and are a privilege, not a right. Grazing and ranching are such uses. Thus, in determining which of such discretionary uses may be allowed or may have priority, the public land manager must consider the impact of the proposed use on other public uses or values of those lands. Where there are public values, particularly wildlife such as the threatened grizzly on public lands, it may be logically argued that if a livestock owner wishes the privilege of grazing domestic livestock on the same area, he must accept some losses from the wildlife as part of the cost of doing his business on that public land. In such a case the restoration of the threatened species should be recognized as having a greater public value than the economic return to the affected rancher.

Considering this, we believe that taking of a threatened species committing depredations, or otherwise being a "nuisance," on public lands should be prohibited in any case not involving direct threats to human safety. In fact, we suggest that the intent of Section 7 (16 U.S.C. 1536) of the Act is, inter alia, to prohibit taking (killing) of endangered or threatened species on lands belonging to all of the American people, in any situation where it cannot be shown that such taking represents the "extraordinary case where population pressures . . . cannot be otherwise relieved."

Again, we are aware of the deep commitment with which the personnel in the Department of the Interior have approached the preservation of endangered and threatened species. Implementation of this law will undoubtedly aid in protecting both endangered species and environmental quality throughout the U.S. and the world. In that regard, we hope our comments are helpful in further administration of the law and in achieving its objectives.

Sincerely,

RUSSELL W. PETERSON,
Chairman.

Senator FORD. Mr. Marcus.

STATEMENT OF STANLEY A. MARCUS, CHAIRMAN OF THE TECHNICAL ADVISORY AND LEGAL COMMITTEE OF THE NORTH AMERICAN FALCONERS ASSOCIATION

Mr. MARCUS. Mr. Chairman, my name is Stanley Marcus and I am representing the North American Falconers Association.

I have a written statement here with some exhibits I would like to submit.

Senator FORD. It will be included.

Mr. MARCUS. Thank you.

You are familiar with falconry as you previously mentioned the subject in these hearings and I would just like to add some points to what Colonel Graham already said.

I would like you to know, for example, that in about 1968, the first peregrine falcon was bred in captivity by a falconer in this country and in the world, for that matter, at least the first one since way back in the 1930's when there was one accidental breeding. And from then, until 1972, there were a total of 10 bred. In 1972, 10 more were produced. In 1973 there were 18 produced and in 1974 there were 30. Most recently, in 1975, there were 62 peregrines bred in captivity.

It is important to point out that 13 out of 14 of the successful breeders of the large falcons were private operators and all were falconers. They were not institutions. The government was not on the in-go and is not yet on the out-go. The breeders donated their time and their money and their birds and for the sake of conserving that species and also for the sake of hopefully creating an available stock for use in falconry.

Based on the learning curve and the successes that have been realized in these captive breedings to date, we can expect to restore the peregrine falcon to its eastern breeding range within 15 years.

Now, it is our understanding that the intent of this act was to protect wild stock and also to encourage restoration and yet some of the regulations that have been promulgated are already discouraging those very people who have the talent and the ability to restore these peregrine falcons.

I say these regulations discourage them because they remove the privilege of using even part of the product of their efforts for the sport in which they are so deeply interested. And it is beginning to have, I think, just the opposite effect; this regulation that prohibits the use of captive bred progeny has exactly the opposite effect of what was intended by Congress.

So all I would like to do here in conclusion is to propose a couple of amendments that I think would solve the dilemma of the falconer and would certainly encourage the solution of the dilemma of the falcon.

One is we would like to see section 9(b), which is the grandfather clause, include not only pre-act birds but the progeny of those pre-act birds, that is the *captive bred progeny* of those pre-act birds, and, second, in section 10(a) it might be very appropriate to make a special use provision for the captive bred progeny of post-act captured birds.

I believe, that is about all I have to say.

Senator FORD. While Colonel Graham is still here, his recommendation that amendments to the bill—are you inclined to agree with those suggestions?

Colonel GRAHAM. Yes, sir, I am.

I think in the ultimate interest of the bird, that what we have to have are gene pools, representative genes because we have a peregrine falcon that is found around the world and ones in this continent are found from Mexico to the Arctic and, if falconers aren't allowed to take into captivity today and breed some of the genes that are still out there in the wild while they are there, in future years if the trend

downward should continue that I just elaborated a moment ago, in the Rocky Mountains we'll reach the point where finally the regulatory agencies will have said, "Yes, you have proven that you can do it, but where in the heck are we going to get the birds to do it?"

And so we have got to have a broad scope type of thing and it has got to be on a now basis and the Bureau is not equipped to act on an as-needed basis. It has been 7 years since I've been trying to get them to do it. They are finally coming around.

But we need something now that is going to provide for these. It can be reduced by logic, what we need. We don't have to have 15 studies by various experts to prove what is logical, that, if you put your foot in the water, you'll probably get wet.

Senator FORD. Well, Colonel, we apparently have had some dealings with the government. Logic is not one of those virtues which they possess.

Thank you very much.

[The statement follows:]

STATEMENT OF STANLEY A. MARCUS, THE NORTH AMERICAN FALCONERS ASSOCIATION

Mr. Chairman and members of the Subcommittee; I am Stanley A. Marcus, Chairman of the Technical Advisory and Legal Committee of the North American Falconers Association. On behalf of our organization I extend our gratitude for this opportunity to testify as to matters which we believe may have been, by oversight, left unresolved or at least subject to excessively narrow interpretation in the Endangered Species Act of 1973. Our chief concern is with the intent of the Act regarding post-Act progeny of parent birds which had been taken either prior to the Act or prior to a species being declared endangered under the Act.

For the sake of clarification, falconry is the sport of taking wild quarry by means of trained raptors, i.e., hawks, falcons, eagles and owls. Our organization is dedicated both to the perpetuation of falconry as a legal field sport as well as to the individual welfare and collective conservation of the raptors upon which the future of the art is so intrinsically dependent.

For example, two subspecies of the peregrine falcon used in falconry and indigenous to North America, have been listed as endangered by the Secretary of the Interior. For 4,000 years this species has been of pre-eminent interest to falconers. In fact, modern-day falconers were among the first to detect a significant decline in reproductive success. While science was still trying to confirm the threat and to fathom the cause, falconers initiated captive breeding programs to avoid extirpation of the species. Under controlled conditions, natural hazards which commonly take a 60%–70% toll on immature wild birds were eliminated, and multiple clutching techniques were developed to increase productivity. Due to falconers' efforts, 1975 saw at least 62 peregrine falcons bred in captivity in North America alone. Furthermore, they succeeded fledging an additional 81 non-endangered large falcons thereby demonstrating the management potential of captive propagation. From these results we can predict that breeders will be able to fully restore viable populations of peregrine falcons to their historical breeding ranges in the Eastern United States within 15 years. (Ref: *Canadian Field Naturalist*, No. 2, 1976—to be published).

I must emphasize that all of the aforementioned 143 large falcons were bred by falconers. Furthermore, many of the successes with endangered species employed pre-Act parent stock donated by falconers. I must also point out that 13 of the 14 successful breeders are operating on a private as opposed to institutional basis. These falconers have devoted their time, their money, and their birds to the conservation of the species and in the hope of developing a captively bred population from which surplus birds could be obtained for recreation. The November 1975 Audubon Magazine contained an excellent article on these propagation and reintroduction activities.

Section 2 (a)(5) of the Act speaks of "encouraging . . . interested parties . . . and a system of incentives to develop and maintain conservation programs . . .". Yet we find in the federal regulations promulgated under authority of the Act that to fly post-Act progeny of pre-Act taken parents in falconry is prohibited. (Ref:

50 CFR 17.11 (b) and Federal Register, 41 (10):2237, January 15, 1976). We can only presume that the Fish and Wildlife Service has assumed authority to establish this prohibition from the somewhat nebulous reference to "offspring" in the definition of "wildlife" in Section 3(5) of the Act, but we question whether these regulations truly reflect Congressional intent. At best they will tend to discourage and demotivate those very parties whom the Congress intended to stimulate—those who have already given generously and accomplished so much—those within whom reside the skills and the determination to re-establish the endangered and threatened raptors.

To prohibit these dedicated people from using captively bred progeny in falconry serves no constructive purpose. Such use is not consumptive of wild populations and is even considered to be an important component of recovery plans devised by qualified scientists. (Ref: "Proceedings of the Conference on Raptor Conservation Techniques", *Raptor Research Report No. 2*, 89–104, 1974).

In fact, the dynamics of captive propagation, re-introduction to the wild, and even the genetically sound policy of occasionally introducing new, wild bloodlines into the program make excessive restrictions on the use of these progeny logistically impractical. Such restrictions totally preclude the use of one of the principal re-introduction methodologies, i.e., conditioning inexperienced young birds through use in falconry while minimizing their exposure to environmental adversities, until they reach breeding age.

We, therefore, respectfully ask that you carefully consider the desirability of certain elements of the Act which have already begun to generate conditions and activities inimical to its own objectives.

We ask that you amend the Act at least to the extent of placing progeny of pre-Act raptors in the same category as their parents and that you further consider incorporating language which will permit the application of a more liberal and constructive interpretation toward all captively bred progeny.

Finally, I pray that the Congress will recognize the pernicious implications of a regulatory policy oriented principally toward facilitating enforcement rather than toward the basic objectives of the enabling legislation; that it will, in its wisdom, take the necessary steps to assure that inequitable and counterproductive restrictions will be avoided.

Senator FORD. I think I have had a pretty good morning. Thank you all very much.

[Whereupon, at 1:35 p.m., the hearing was adjourned.]

ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

STATEMENT OF CYNTHIA E. WILSON, WASHINGTON REPRESENTATIVE, NATIONAL AUDOBON SOCIETY

Mr. Chairman and Members of the Subcommittee: We appreciate this opportunity to comment on S. 3122 and S. 2334 to extend the authorization for appropriations for the Endangered Species Act of 1973.

We are painfully aware that federal funds are scarce, and as always this year fish and wildlife programs received low priority in the Administration's budget. The bills before you would extend authorizations through fiscal 1978 at the same level as the current authorization. This level of funding will not be sufficient to carry out the endangered species program.

At the oversight hearings which the House Subcommittee on Fisheries and Wildlife held last fall, they asked the Fish and Wildlife Service to provide estimates of what it would really cost to implement this Act. We understand that the FWS estimate for fiscal 1977 for an optimum operational program, exclusive of state grants and land acquisition, was $19 million, rising to $27.8 million in fiscal 1981.

Consistent with those recommendations, we urge you to increase the authorization ceiling and to extend the period to at least five years. Two years is not long enough to plan ahead, and the Committee can continue to exercise its oversight authority just as well regardless of the period. We realize full well that the conservation community will also have to convince the Appropriations Committee and the Budget Committee that these funds are needed, and if they are made available we still have to persuade the Administration to spend them.

We note that the House has passed H.R. 8092 which increases the ceilings for fiscal 1977 and 1978 to $25 million for the Fish and Wildlife Service and $5 million for the Commerce Department. We certainly think that these amounts are much closer to the real need, and we hope your Committee will be at least this generous.

We would like to call to your attention some specific needs and problems in the Endangered Species Program.

1. Grants to States. One of the key sections of the Act is Sec. 6(d) which provides for grants to the states to implement the Act. I will not go into detail about the reasons why this program is necessary, but simply want to emphasize that it is essential to carry out the Act.

Last fall the Fish and Wildlife Service estimated that $9 million would be needed by the states in fiscal 1977, and increasing amounts for the years following. However, the Administration requested no funds for grants to states in its fiscal 1977 budget. We wish to support the specific recommendations of the International Association of Game, Fish and Conservation Commissioners as to the amount that is needed, and we urge you to include that amount in the authorization.

2. Another key segment of the Endangered Species program that is not receiving sufficient attention is the implementation of the Convention on International Trade in Endangered Species of Wild Flora and Fauna. Although the United States played a leading role in negotiating this convention, our government is still not enforcing it! In fact, the President has still not signed the Executive Order as required by Section 8(a) of the Act which would set the wheels in motion. This puts our government in an hypocritical position, since the other signatories are already putting the convention into effect. I can't imagine it would cost the President anything in time or money to simply sign that order.

Even after the President gets around to signing the Order, any actual work to implement the convention must be carried out with existing program funds, which are already stretched thin. We hope the Committee will urge the President to sign the Executive Order and urge the Department to get moving on implementing the Convention. Although we cannot put a specific price tag on what full implementation might cost, the first priority is to get the President to move.

3. Another area we hope the Committee will keep tabs on is the implementation of Section 7. Although the Department has started this process, we hope the Committee will urge that high priority be given to designation of critical habitat. Thus far, proposals have been published for only a handful of species.

4. Similarly, progress in implementing Section 12, Endangered Plants, has been very slow. While we realize that this section is of itself a massive undertaking, we are concerned that it has fallen between the cracks and needs to be given a nudge. For example, with the new demand for wood for home heating, power plants, and paper exerting strong pressures on the northeastern forests, attention needs to be given promptly to identify unique forest habitats harboring plants and animals which may be threatened or endangered.

5. Another area which will benefit from increased funding is enforcement. Unfortunately, even though we have a good law on the books, that does not stop people from killing endangered species. In recent months, two bald eagles have been found shot in Maine. One of them was a transplant which was part of a restoration project. Both feet of the other eagle had been cut off. Similarly, when four timber wolves were "transplanted" from Minnesota to Michigan in 1974, all were killed. One male was killed by an automobile, the other was shot; one female was trapped by a coyote trapper and shot, and the second female was shot by a deer hunter.

The personnel of the enforcement division are spread so thinly, that it is exceedingly difficult to apprehend violators much less prevent violations of the Act.

In short, the endangered species program has many facets all of which need adequate funding if the law is to be carried out, and we believe that it is essential to raise the authorization ceiling.

I would now like to turn to some administrative problems related to the Act which we hope the Committee will help resolve.

It is our understanding that the Interior Solicitor's office has determined that an environmental impact statement must be prepared in order to add species to the endangered or threatened list. This seems totally unnecessary to us and will further overburden an already overburdened staff. We do not advocate waiving NEPA. However, it is certainly possible for the Department to use the procedure of an environmental assessment and a negative declaration in order to expedite this process. In most cases, this should be sufficient, but when controversy arises then a full-scale EIS could be prepared.

Finally, I would like to turn to the subject of special exceptions to the Endangered Species Act, such as those for scrimshaw and sperm whale oil. We strongly oppose such exceptions in principle because we fear they will lead to a demand for other exceptions from other industries, and eventually the Act will be nibbled away. The Senate has already passed the scrimshaw bill, and now the House has passed H.R. 10229 which covers both scrimshaw and the GSA stock of sperm whale oil. If the Senate agrees to these amendments, we very much hope that you will make it abundantly clear in the Committee Report that it is not the Committee's intent to entertain a succession of special exceptions.

Also included in HR 10229 were several important amendments related to the enforcement authority of the Fish and Wildlife Service. These amendments are urgently needed, and we urge you to adopt them. In addition there is an important amendment regarding emergency situations which we support.

Thank you for your consideration of our views.

STATEMENT OF RUBY I. COMPTON, NATURAL RESOURCES DEFENSE COUNCIL, INC.

I appreciate the opportunity to submit this statement concerning the implementation of the Endangered Species Act of 1973. The Natural Resources Defense Council (NRDC) strongly supports this Act and the continuing efforts of Congress to protect endangered wildlife.

NRDC is a public interest organization dedicated to the protection of the natural and human environment. NRDC is very concerned with the protection of endangered and threatened species of wildlife and has corresponded with the U.S. Fish and Wildlife Service and several other Federal agencies whose activities may adversely affect the continued existence of endangered and threatened species to ascertain their efforts in this regard. It is clear that although the Act was enacted more than two and one-half years ago, inadequate steps have been taken by virtually all of these agencies to comply with the Act and, in particular, Section 7 of the Act.

We believe that Section 7 is the backbone of the Act and that immediate implementation is necessary. As you know, Section 7 requires all Federal departments and agencies: "in consultation with and with the assistance of the Secretary [to] utilize their authorities in furtherance of the purpose of this Act by carrying out programs for the conservation of [listed species, and to take] such action necessary to ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of [the critical] habitat of such species."

Although there is no duty on the part of FWS to officially designate areas of critical habitat for foreign species, the FWS has interpreted § 7 to apply to Federal agency activities outside the U.S.: "Section 7 applies to activities and programs by Federal agencies affecting listed species in foreign countries and on the high seas, as well as in the United States." *Guidelines*, § I,A,2.

. . .

The FWS further explained: "No indication is given in any quarter that Congress intended to excuse agency consideration of a jeopardy resulting from its foreign activities to a listed species' continued existence. Thus, Federal agencies and departments are still required to take "such action necessary to ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species." Letter from Lynn A. Greenwalt to Thomas B. Stoel, Jr., and Ruby I. Compton, March 2, 1976."

On April 22, 1976, the FWS sent to all Federal agencies whose activities may impact on endangered and threatened species "Guidelines to Assist Federal Agencies in Complying with Section 7 of the Endangered Species Act of 1973" ("Guidelines"). The Guidelines were not published in the Federal Register although they are to provide a "starting point from which FWS Section 7 regulations will be developed" (a copy is attached). The Guidelines are a commendable beginning, particularly the sections concerning agency consultation with the FWS. However, they are deficient in several respects. For example, the Guidelines do not adequately address the issues of cumulative impacts of agency actions; actions which occur at locations removed from the actual habitat, but which may have a destructive impact upon the habitat such as upstream water pollution; the significance and possible prohibition of minor modifications of critical habitat; and the inclusion of providing financial assistance in the definition of "federal action." Nor do the Guidelines provide for adequate public participation in the agency decisionmaking process for determining whether proposed or ongoing agency actions will jeopardize the existence of an endangered or threatened species or destroy or modify the critical habitat of such species. NRDC and several other environmental groups intend to submit detailed comments to the FWS concerning suggestions for appropriate revisions to the Guidelines prior to final promulgation of the regulations. NRDC will be pleased to make these comments available to the Subcommittee.

Such FWS regulations will provide only part of the solution. All other Federal agencies whose actions may affect endangered and threatened species are also required to comply with Section 7 and should do so immediately by promulgating and enforcing regulations which establish procedures for ensuring that these agencies will take "all action necessary to ensure that actions authorized, funded, or carried out by [them] do not jeopardize the continued existence of . . . endangered species and threatened species or result in the destruction or modification of the [critical] habitat of such species."

Under the procedures thus established, the agencies must determine whether any of their ongoing or proposed actions may have environmental impacts on areas where any endangered or threatened species are found. If there may be such impacts, the agencies must find out whether any actions will jeopardize the existence of the species involved or destroy or modify critical habitat. If they will, the actions must be modified or halted in order to protect the listed species as required by Section 7. The regulations promulgated by the agencies should include the following:

1. Procedures for notifying agency personnel in the field and in decisionmaking positions of the descriptions and designated critical habitats of all species listed pursuant to Section 4 of the Act, 16 U.S.C. § 1533 (1974), which may be found in areas affected by agency actions for which they are responsible. Some of this information is available from the FWS or from the International Union for Conservation of Nature and Natural Resources in Morges, Switzerland. If the

critical habitat has not been so designated by the FWS for the species involved in agency actions, the agencies must seek from the FWS a determination that the area involved is not a potential critical habitat. (*See* Letter from Curtis Bohlen, Acting Assistant Secretary of the Interior Department, to Norbert T. Tiemann, Administrator, Federal Highway Administration, May 6, 1975).

2. Procedures for assessing all ongoing and proposed agency actions to determine whether they will impact on endangered or threatened species or their critical habitats. Actions and programs which should be assessed include: granting of licenses, contracts, leases, assessments, rights of way, permits, grant-in-aid; providing financial assistance; and activities or permits directly or indirectly causing physical modifications to the land, water or air.

3. Procedures for preparing a publicly available record if the agencies pursuant to the assessment, determine that there will be no significant impact on the species. The record should set forth the agencies' decisions and the reasons for the negative determinations. The procedures should require that the agencies periodically prepare a list of these negative determinations and announce the availability of the list in the Federal Register.

4. Procedures for preparing, circulating for comment, and considering in the agencies' decisionmaking, in accord with the National Environmental Policy Act (NEPA), an environmental impact statement whenever the agencies determine, following the assessments, that a proposed action arguably will have a significant impact on endangered or threatened species. A significant impact should be defined as an impact which would result in the reduction of the reproductive ability, numbers, distribution or habitat of the species. The environmental impact statement should discuss the impacts of the proposed action on the species and its habitat, consider alternatives to the activity and otherwise comply with the Council on Environmental Quality's NEPA Guidelines, Section 1500.6. Preparation of an impact statement in these circumstances is legally required by NEPA. In accord with Section 7, NEPA, and the CEQ Guidelines, agency proposals for actions or ongoing agency actions which may jeopardize the existence of or destroy or modify the critical habitat of listed species must not be implemented or continued until the NEPA environmental impact statement process has been completed and final determination has been made that the action will not jeopardize the continued existence of any listed species or result in the destruction or modification of critical habitat of any listed species, or the action has been modified to eliminate the jeopardy or destruction of habitat. Any such modifications must be discussed in the impact statement.

5. Procedures for consulting with the FWS during the impact statement process to obtain biological data and recommendations for alternative actions. Such procedures are outlined in the FWS Guidelines, Sections III, B, C, and D.

We believe that the promulgation and enforcement of such regulations will be a major step in the direction of providing adequate protection to endangered and threatened species throughout the world. We urge Congress to provide adequate resources to the FWS and other appropriate federal agencies for such actions.

Thank you once again for the opportunity to submit these comments.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., April 6, 1976.

Hon. WARREN MAGNUSON,
Chairman, Senate Commerce Committee,
Dirksen Building

DEAR MR. CHAIRMAN: We were notified last Friday by your staff that consideration of the House amendments to S. 229 will be delayed until some time next month. I am writing to tell you of my disappointment at this news.

As you know, the key (and most controversial) provisions of the House amendments are the legalization of the sale of scrimshaw and sperm oil products, where it can be shown conclusively that the scrimshaw or sperm oil was lawfully obtained prior to enactment of the Endangered Species Act amendments. To me, these provisions make perfect sense because the present situation (significant quantities of these products tied up indefinitely in storage while a waning domestic market still exists) penalizes American businessmen and continues to cost the taxpayers money.

Moreover, perpetuation of this situation does nothing to protect the endangered species. The stockpiled scrimshaw and whale oil were acquired years ago and the whales were dead long before the ESA was written. In fact, the 23.4 million pounds of sperm oil declared surplus property by the federal government were all acquired at least 25 years ago.

It is this government oil that is of particular interest to me. Several years ago, two American companies signed contracts with the General Services Administration to purchase this oil for several million dollars. Those companies still stand by their offer and the taxpayers are denied those funds until the legal status of the surplus sperm oil is clarified.

We should also be aware of the fact that it now costs GSA in excess of $36,000 per year to store this sperm oil, which it does not want and would prefer to sell. Each month that the Congress dallies and fails to enact corrective legislation, permitting GSA to sell its surplus sperm oil, the taxpayers pay out more than $3,000 in storage costs.

I do understand that a new element has entered into the debate, by the recent allegation that the Werner Smith Co. of Cleveland, Ohio engaged in illegal sales of sperm oil during 1975. But I do not see why this should cause any delay in consideration of the House amendments to S. 229. Nothing in the legislation (which passed unanimously at the Subcommittee and full Committee levels, as well as on the House floor) would impart retroactive legality upon any sales that took place between the enactment of the ESA Amendments and the proposed new law.

Thus, I urge you and your Committee to move as promptly as possible to resolve the current situation by considering favorably the proposed legislation that would permit the government and private parties to sell off lawfully acquired stocks of scrimshaw and whale oil.

Thank you for your consideration.

Sincerely,

CHARLES A. MOSHER,
U.S. Representative.

SHOOK, HARDY & BACON,
Washington, D.C., April 28, 1976.

The Endangered Species Act Amendment which is subjected to a hearing before the Commerce Committee on Thursday morning, May 6, said hearings to be held in Room 5110 of the Dirksen Building.

As a matter of background S. 229, which is known as the Scrimshaw Art Preservation Act of 1975, was considered by the Senate Committee on Commerce and reported out in April, 1975. It was considered on the floor and passed, and sent to the House. The House held hearings in February, 1976, and amended the bill to include a grandfather clause for other items subject to prohibitory sales as result of the Endangered Species Act of 1973.

The reason for the Act is as follows. The Marine Mammal Protection Act which was passed by the Congress on October 21, 1972, was designed to prevent the further slaughter and depletion of marine mammals throughout by removing the United States market for the parts and products of these mammals. The Act prohibited the importation and sale in interstate and foreign commerce of such parts and products, although these prohibitions did not apply to marine mammals taken prior to December 21, 1972, the effective date of the Act.

In 1973, Congress passed the Endangered Species Act of 1973, which strengthened its 1969 predecessor by prohibiting not only the importation but also the sale of endangered species and their parts and products in interstate and foreign commerce. Unlike the Marine Mammal Act, however, the Endangered Species Act contains no reactive exemptions for the interstate sale of parts and products of endangered marine mammals which were legally held under the 1972 Act. This inconsistency has resulted in a great deal of confusion in the enforcement of the laws and has created financial hardship. These individuals and companies possess substantial inventories of legally acquired whale bone, whale teeth and whale oil but are prohibited from marketing their products under the 1973 Act. Since exemptions for the sale of these items cannot be granted administratively, legislation is needed to rectify this situation.

This office represents Werner G. Smith, Inc. of Cleveland, Ohio, and in this regard reiterates the following facts:

a. In October of 1972, GSA invited industries' representatives to a meeting for the disposal of 23,402,600 pounds of sperm oil which had been held by the Federal Government in stock pile from a period of January, 1948 to June, 1952 after numerous meetings;

b. A bill was introduced in April 1973, entitled "To authorize the disposal of various materials from the national stock pile and the submittal stock pile, and for other purposes". In that bill it called for the disposal of the 23,400,000+ pounds of sperm oil.

c. Prior to this time, and pursuant to law, notice was placed in the Federal Register, notice No. FR Docket 73-409, calling for its disposal.

d. The Werner Smith company submitted their first bid to GSA under date 10/24/73; on 10/26/73 minor modifications were made; and on 11/28/73 a new bid was submitted; and December 28, 1973 a final bid was made. On January 10, 1974, the company received a telegram from GSA notifying that their bid of 12/28/73 had been accepted and on 1/31/74 GSA signed a contract.

In the meantime, the Environmental Protection Act of 1973, oddly enough, also received final passage on 12/28/73 and therein lies our problem.

Pursuant to its contract with GSA and subject to orders of withdrawal, our client today has paid for 6,482,908 pounds of sperm oil. It is obvious from the facts that GSA was certainly not aware of the Endangered Species Act of 1973, obviously, our client was not aware of the restrictions within the confines of the Act. Certainly, NOAA was not aware of the Act because they did not send an agent to the Werner G. Smith company and advise them of the conflict until September 9, 1974.

The Werner G. Smith company is a small organization in Cleveland and readily admits the disposal of sperm oil since the passage of the Environmental Protection Act of 1973, it readily admits the disposal of products since the question has been raised relative to the legality of these transactions. Had it not been able to do so, it would have been in serious financial condition relative to its size and relative to the cash position of a small company of their marketing capabilities. The Federal Government is now paying approximately 40,000 dollars a year for annual warehouse cost for storing the balance of the previously authorized disposal product and on the present sale price of approximately 17¢ to 20¢ a pound is losing for the benefit of the Federal Treasury approximately 1,750,000 dollars as a result of being stymied in the disposal of the said product.

The Commerce Department testified in the House action that the amendments adopted by the House should be placed in the bill and this situation should be resolved. Certainly, our client takes the same position, and rightly so, having paid his Federal Government he obviously feels he is entitled to a return of his funds having bought from the Government pursuant to a GSA contract, or exemption to p oceed with the fulfillment of this contract pursuant to the language set out in H.R. 10229.

We feel the inclusion of this language in H.R. 10229 in no way encourages the continued destruction of the sperm whale. As has been stated herein and in the House Committee Report the acquisition of the oil in question was acquired by the United States between January, 1948 and June, 1952. Certainly, it was not the intent of Congress in the passage of the Environmental Protection Act of 1973 to require the General Services Administration to continue to hold indefinitely and/or forever 23,000,000+ pounds of sperm oil nor, would I assume, was it the intent of Congress in the passage of the 1973 Act to require that GSA in the name of the United States Government continue to pay over 40,000 dollars a year in storage space with no expectations at any time in the future of either eliminating this cost or in any way attempt to recover the cost that the Federal Government has in the product. It, therefore, seems logical that once this material is disposed of there will be no more, no more will be available from any source into the United States, except on a totally illegal basis and the matter will be solved and resolved once and for all.

We seriously recommend that the Commerce Committee Subcommittee and the full Committee recommend H.R. 10229 to the Senate as passed by the House.

THE DETROIT CACTUS AND SUCCULENT SOCIETY,
St. Clair Shores, Md., April 29, 1976.

Hon. PHILIP A. HART,
Chairman, Subcommittee on the Environment,
U.S. Senate, Washington, D.C.

DEAR SENATOR HART: Thank you so much for your letter of April 7 notifying us of the reauthorization and oversight hearings scheduled by the Senate Subcommittee on the Environment for May 6 on the endangered species program.

We are very pleased to call your attention to the new publication by the State Department of Natural Resources, Michigan's Threatened and Endangered Species Program, enclosed.[1] The State of Michigan is one of only about a half dozen states which has enacted a law conforming with federal requirements, the Endangered Species Act of 1974, effective September 1, 1974. On April 2, 1976 after 18 months of work, the State Department of Natural Resources held a hearing on a proposed listing of about 80 threatened and endangered species of plants and animals, see enclosed announcement from the Detroit News.

Strong support for protection has also come from the private sector as illustrated by the enclosed Detroit Free Press article, April 4, 1976 describing the work of the Michigan Nature Association which has acquired 35 parcels of land totaling 2,000 acres for the purpose of preserving the natural habitats of native plants and animals in Michigan.

An important aspect of the Endangered Species Act of 1973 was the provision for a federal-state partnership, the framework of which is set forth in Section 6 providing for cooperative agreements with and financial assistance to the states. The State of Michigan has entered into this program in good faith even though financial assistance has been minimal thus far. This minimal level of State grants is proposed to be continued. According to the U.S. Office of Management and Budget "No funds are requested in FY 1977 for Endangered Species grants to States." And only $2 million was appropriated in 1976.[2]

The Department of Interior, Fish and Wildlife Service has been relying very heavily on State participation in the program, and has directed much effort to securing cooperative agreements with the states. The absence of real financial incentives has, no doubt, thwarted significant progress in consummating agreements with the states. When dealing with the political realities of the fifty states, this is a self-defeating feature of the program.

We believe that the Department of Interior and its Fish and Wildlife Service has concentrated almost exclusively on trying to orchestrate this program through the states, and as a consequence, has inadequately equipped itself to deliver a national response to a problem which by definition is national in scope. As of October 1975 when testimony was given before the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, officials could admit only to the fathering of systems, procedures, rules and regulations, definitions, etc. That is, after some 21 months of operations, they were still in the "start-up" stage of program development. Now six months later, there is evidence to suggest that they are still hung-up on the starting line!

Item.—No plant species have been listed as threatened or endangered and only about 10 animals have been listed in the past year.

Item.—The Fish and Wildlife Service has not been willing to request staffing appropriate to workload. For example, there are only two botanists in the Office of Endangered Species to review the status of 3,000 species of plants proposed by the Smithsonian Institution as threatened and endangered. The credibility of the Fish and Wildlife Service is jeopardized by this ridiculously low level of staffing.

Item.—We question the absence of a streamlined procedure to verify the scientific findings of the Smithsonian Institution which identified endangered and threatened plant species in a report authorized by Congress.

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[1] The book is in the Committee files.
[2] Executive Office of the President Office of Management and Budget, Seventy Issues Fiscal Year 1977 Budget, January 21, 1976, p. 44.

Item.—The Fish and Wildlife Service has proposed a reorganization which would remove the biological support branch from the Office of Endangered Species. We are unalterably opposed to further dilution to the already limited staffing levels.

Most emphatically we speak to the critical need to take action on the protection of plant species. The Detroit Cactus and Succulent Society and the conservation committee of the Cactus and Succulent Society of America have been vigorously seeking relief from the commercial exploitation of cacti, the plundering of the field for the market place. We know of whole habitats being destroyed—strip mining fashion! We see a heavy flow of collected cacti on the market right here in the Detroit metropolitan area. In order to give a perspective on the scale of the depletion of native cacti, one can count the thousands of collected cacti found in the Detroit area and then multiply that by some 240 other metropolitan market areas, and then add an amount for the smaller places. In addition to these alarming proportions, it should be remembered that cacti are very slow growing—some of the larger specimens are as much as 400 years old! More than a year ago, the Smithsonian Institution estimated that about 26% of the native species of cacti were threatened and endangered. We are afraid that the percentage is much higher than that now.

Further delay by the Fish and Wildlife Service in mounting an effort to meet their responsibilities under law to control interstate and international traffic in these plants is not acceptable. From the testimony given at the House Hearings in October, officials suggested the scaling down of priorities; that animals should be given priority over plants. We reject this proposed policy as an indiscriminate view of the problem as it exists. Obviously priorities should be established on the basis of those species of plants and animals that are in the greatest peril!

We feel that the Endangered Species Act of 1973 provides a fundamentally sound framework to approach a problem that is by its nature comprehensive in scope. We are concerned that the administration has not thus far demonstrated a commitment nor developed an administrative capability in meeting the challenge.

Sincerely yours,

KATHLEEN KEPNER,
Vice-President.

Enclosure.

[From the Detroit News, Apr. 1, 1976]

DNR LISTS 80 SCARCE SPECIES

After 18 months of work, the state Department of Natural Resources (DNR) has compiled a list of about 80 plants and animals to be protected by law because they are threatened with extinction.

A hearing on the list, which will be incorporated into a proposed state law, will be held at 1:30 p.m. tomorrow in the Law Building auditorium at the corner of Ottawa and Pine Streets in downtown Lansing.

Some of the better known creatures included on the list are the Kirtland's warbler, the bald eagle and the Eastern timber wolf.

Not all of the animals and plants included in the list can be found in Michigan, officials explained. They were included because they are designated as protected species by the federal government.

Working with the state officials to compile the list were members of the scientific community, many university professors and a citizens advisory committee, all of whom donated their time and help.

"We really don't know if there is going to be any controversy about the list." said Jack D. Bails, assistant to the director of the DNR.

"Mainly, the involvement has come from the scientific community."

The need for specific legislation to protect endangered species is cited in the introduction of the DNR manual outlining the proposed endangered and threatened species program.

One example is the disappearance of the passenger pigeon flocks.

THE CACTUS & SUCCULENT SOCIETY OF AMERICA, INC.,

Altadena, Calif., May 3, 1976.

Senator PHILIP A. HART,
Chairman, Subcommittee on the Environment, U.S. Senate, Committee on Commerce, Washington, D.C.

DEAR SENATOR HART: Please accept the following comments as part of the written record of your Subcommittee Endangered Species Oversight Hearings to be held May 6, 1976.

I am Gary Lyons, Chairman of the Conservation Committee and member of the Board of Directors of the Cactus and Succulent Society of America, Inc., a non-profit organization of five thousand members devoted to the pursuit of conserving, growing, and studying cacti and other succulents.

A review of the Congressional Endangered Species Oversight Hearings (held before the Subcommittee on Fisheries and Wildlife Conservation and the Environment, Robert L. Leggett, chairman, in October, 1975) makes it apparent that the kinds of wildlife permits, when issued by the Office of Endangered Species, puts potentially greater hardship upon those trying to obey the Endangered Species Act of 1973 than those who would disobey it. For example, take the testimony of Thomas Wilds, President of the National Congress of Animal Trainers and Breeders (p. 117 of the Hearings):

". . . There are this day, or last week, I should say, more than 175 surplus tigers within zoos, breeding compounds and circuses in the United States.

Where do 175 surplus tigers go? What is to be done with them? Or more importantly, why are they surplus?

One reason is because permits have not, or will not be granted by the Department (of the Interior). It is true that the animal facilities in our country cannot absorb the surplus animals. However, it is a well-known fact that more than 70 zoos and trainers in Europe and Asia are in the market for tigers now. It is also a fact that some are importing tigers from the wild.

Under the law as it is being administered at the present, the only right the owner of an endangered species has is to feed and house the animal. It is true that it is illegal to breed endangered animals, but why should any owner attempt to breed without any but the slightest chance of receiving a permit to ship or sell the surplus stock?"

It would appear to me that the greatest fault lies in the Department of the Interior's interpretation of the intent of the law, as set forth in its permit and regulatory procedures. Apparently, the Department has aimed enforcement of the Endangered Species Act of 1973 directly at commercial "habitats" of endangered and threatened species, and has all but avoided addressing law enforcement to the natural habitats of these species. An unworkable permit system has replaced the funds allocated by Congress for direct protection of habitats and these funds have either been impounded or left unspent. This leaves one to wonder if the Department has, in its interpretation of the Act, overlooked the original intent of the Act. As George Steele, Executive Director, Zoological Action Committee, Inc., testified in the previous Oversight Hearings (p. 132):

". . . let's recall the purposes for which this act was passed . . . Quite simply, the Congress wanted to prevent any more species of animals from being wiped off the face of the Earth for whatever reason. Two approaches were used in the act to prevent this: (1) The prohibition against all traffic in interstate or foreign commerce in endangered animals or their products; (2) the authorization of the Secretary to prevent the destruction of critical habitats. It was, we believe, the clear intention of the act that no endangered animal would be removed from the wild for any purpose except for scientific purposes or to enhance the propagation or survival of the affected species."

If a system of permits, similar to that now utilized by the Department of the Interior for endangered and threatened fauna, were to be applied to legitimate trade in cacti and succulents, there can be little doubt that the hobby and current

commercial popularity of succulent plants would be destroyed. In this regard, it must be recalled that when the Smithsonian Report and the Convention become part of the Endangered Species Act, all cacti and most of the other succulents could potentially be regulated in the same devastating manner as are some of the animals, such as the Bengal Tiger, as pointed out in Oversight Hearings Testimony

Let me give just one example, that of the Golden Barrel Cactus (*Echinocactus grusonii,* to point out, at least in theory, what could go wrong with the Interior Department's interpretation of the law if it were to be applied to plants. The Golden Barrel Cactus is native to a restricted area in Mexico where it has been much-collected by local people. Two years ago, it was listed in the I.U.C.N. Red Data Book as endangered and is, of course, covered by Appendix II of the Convention. In my twenty-five years as a cactus grower, I have seen but a single field-collected plant of the Golden Barrel Cactus in the United States. However, the Golden Barrel is one of the most popular cacti in the hobby and in the trade. Seed of this species is readily available, by the million, from nursery-grown plants, and the trade sustains tens of thousands or even hundreds of thousands of Golden Barrels. Therefore, the commercial population of this species has long been a self-sustaining one. There is, then, no connection between the commercial propagation of the Golden Barrel Cactus in the U.S. and its natural habitat in Mexico, where it is endangered. My point is this: if the legitimate market for Golden Barrels was to be regulated to death (and nothing done about its status in Mexico), there can be little doubt that a black market for field-collected plants would be developed as they may be more easily obtained in this manner. This, of course, would make the Golden Barrel habitat more vulnerable to extinction than ever.

Another point is that of inspections. Inspection of plant material can be utilized to implement permits to ship in interstate commerce. The U.S.D.A. has inspectors who examine plants to see if they are free of pests and diseases and if so, a phytosanitary certificate is issued on the spot, thus allowing the shipper to send the plants to whichever state or country that requires such permits. I think this approach might be useful in regard to endangered and threatened species to satisfy the Department of the Interior that a given shipment of plants was not field-collected. For example, if the Department of the Interior was to inspect nurseries trading Golden Barrels in order to satisfy itself that these plants were not being taken from Mexico, then a permit to engage in interstate trade could be issued on the spot. In my opinion, regulating trade in endangered and threatened plant species, particularly succulents, in this manner, will indirectly provide natural habitat protection.

If it is difficult for a conservation officer, or someone empowered to enforce the Endangered Species Act, to distinguish field-collected succulents from nursery-grown succulents, then it is a difficulty that can be overcome. One possible solution is to prepare a manual of succulent plant identification that would illustrate specimens, comparing field-grown with nursery-grown plants, identifying tubers and various succulent caudexes in leafless and rootless states as they would be when prepared for shipping, etc. Workshops for inspection personnel could be conducted on the subject of endangered and threatened plant identification.

Please do not mistake my criticisms of the Interior Department's permit system with criticism of the Endangered Species Act. We feel that the Act must be quickly enforced in regard to natural habitats of endangered and threatened plants. We deplore the seemingly endless delays, one being the priority system proposed by the Office of Endangered Species which limits all listings in the Act in the near future to animals only. The most disturbing proposal from the Department of Fish and Game is one that, according to reports, will strip the Office of Endangered Species of its ability to respond affirmatively to the Smithsonian Report. What I am referring to is the Department of Fish and Wildlife's proposed reorganization of the Office of Endangered Species. We are concerned as it suggests a new phase of delaying tactics in an effort to make one Department of Fish and Game officials' cynical dream come true; namely that it would, according to him, take 6,000 years to list all 200,000 species of endangered flora and fauna.

The Department of the Interior, in discerning the intent of the law as it relates to plants, should be mindful of the nine recommendations contained in the

Smithsonian Report. These recommendations encompass the hopes of many of us who are concerned about the future of our native vegetation. The recommendations are:

"1. Preservation of endangered and threatened species of plants in their native habitats should be adopted as the best method of ensuring their survival. Cultivation or artificial propagation of these species is an unsatisfactory alternative to in situ perpetuation and should be used only as a last resort, when extinction appears certain, with the purpose of reestablishing the species in its natural habitat.

2. The species of endangered and threatened plants that occur on federal and state lands should be mapped and given continued protection. More specific attention should be given by federal departments and agencies to the prevention of destruction or modification of critical habitats of endangered and threatened flora in accordance with the Endangered Species Act and the National Environmental Policy Act of 1969.

3. In accordance with Section 4 of the Endangered Species Act of 1973, the Secretary of the Interior should review the lists in this report and publish proposed listed of endangered and threatened plants in the Federal Register.

4. The Secretary of the Interior is advised to ensure that the commercial exploited species of plants in this report are given urgent protection. Appropriate government agencies should be alerted and existing laws should be fully enforced.

5. It is recommended that the list of the species of endangered and threatened plants in this report should be submitted by the Secretary of the Interior to the Convention on International Trade in Endangered Species of Wild Fauna and Flora for inclusion in Appendix III. This listing will enable the Secretary of the Interior, acting as United States management authority to the Convention, to acquire lands for the preservation of endangered species of plants.

6. Since protection alone may not be sufficient for the survival of some populations of endangered and threatened species, monitoring of population levels is needed. For declining populations, research is necessary to determine the causes of rarity and to ascertain what can be done to save the species.

7. A 'Registry of Endangered and Threatened Plants' should be established on a permanent basis to continue to collect, evaluate, and update all pertinent information available to interested national and international organizations.

8. The lists of endangered and threatened plants should be given wide exposure and publicity. Colored illustrations should be displayed in public places, in publications, and on postage stamps. Interested organizations should be encouraged to assist in publicizing the need for protection and preservation of endangered and threatened species of plants.

9. No new legislation is required at this time. However, after a reasonable period, a review of the effectiveness of the Endangered Species Act of 1973 may be required to provide better protection to the endangered and threatened plan species."

We hope that whatever action this subcommittee takes in regard to the Endangered Species Act will result in the speediest action to include plants in the Act. This is because according to the Smithsonian Report, 10% of our native flora is endangered or threatened, 26% of the cactus family is affected and of all the commercially exploited plants, 84% are cacti and other succulents. There is evidence that because of the current plant boom, that there is an upswing in commercial gathering of cacti and other succulents from their native habitats. From a sampling of 1975–76 catalogues, approximately 23% of the cacti and other succulents listed in the Smithsonian Report were offered for sale. As far as I can determine, it is my belief that most of these species are field-collected. Here are some other activities of which you might want to be aware:

1. Last year, one nursery was said to have received a staggering total of 16,000 Compass Barrel cacti (*Ferocactus acanthodes*), all thought to be field-collected. It is not known with any certainty where these cacti were collected or by whom, but there are some indications that they came out of the Clark Mountains in California, possibly on Bureau of Land Management Land.

2. There are reports of commercial collectors who field-collect and sell the plants unrooted. These plants are stored in piles and are said to be quite dessicated, this making them difficult to re-establish. Also there are truckers hauling large quantities of cacti from nursery to nursery. Some of the plants offered in this way are in poor condition, and buyers have experienced high losses. In this category, a most notable occurrence is the report of one collector who removed a great many, perhaps more than one hundred, of a small globular cactus (*Pediocactus sileri*), from its native habitat in northern Arizona, and kept them in a pile in his yard. One visitor noticed that only a few of the plants were alive the rest in the pile were all dead. *P. sileri* is listed in the Smithsonian Report; as endangered.

3. In the Terlingua-LaJitas area, just west of Big Bend National Park in Texas, there is evidence of massive collecting of many different species of globular cacti. The collecting may be on private ranch land, supplemented by other plants brought across the border from Mexico. It is estimated that at least 500,000 cacti are being sold per year in this area and at a price of $18.00 per thousand, cash only, no receipts, no mail orders. It is likely that some of the species collected in this operation include those listed as endangered and threatened in the Smithsonian Report.

4. In nearby Big Bend National Park, a hiker discovered piles of Button Cacti (*Epithelantha micromeris* and *E. bokei*) in piles of about 1,000, all dead. *E. bokei* is listed as a threatened species. Apparently the Park Service has been unable to stop this activity.

5. In South West Africa (Namiba) the *Halfmens* (*Pachypodium namaquanum*), a rare succulent of the oleander family, is strictly protected from collection in its native habitat, is not to be exported, and is further protected by inclusion in Appendix II of the Convention. Filed-collected plants of this species have been recently shipped to the U.S. in containers marked in such a way as not to reveal their true contents.

6. There are reports that protected cycads (*Encephalartos* spp.) are being shipped to the U.S. from South Africa in containers marked "bulbs". These species are rigorously protected from collection and import-export by the provisions of Appendix I of the Convention, and are further protected by South African law.

7. Last year, an entire habitat in South Africa of a very rare and beautiful succulent spurge (*Euphorbia groenwaldii*) was wiped out, apparently by a single commercial collector, and the plants were shipped out of the country. A recent South African visitor observed them in a nursery in the United States. All succulent euphorias are listed in Appendix II of the Convention.

Therefore, it is my belief that the intent and the administration of the Endangered Species Act of 1973 should address itself directly to the question of natural habitat preservation and develop a realistic system for regulating trade in endangered and threatened species of plants. Three important steps must be taken now:

1. Urge that the President sign the Executive Order to implement the Convention without further delay.

2. Insist that the Secretary of the Interior publish, without further delay, the Smithsonian Report in the Federal Register, in order that it may become part of the Endangered Species Act and be included in Appendix III of the Convention and therefore become law. This will also permit the purchase or acquisition of plant habitats.

3. Insist that the Office of Endangered Species give plants the same legal protection as it does animals—it is assumed that this is the intent of the Endangered Species Act—and to move in the direction of habitat preservation without further delay. In this regard, the Director of the Office of Endangered Species should be allotted funds in order to increase the botanical staff to the size necessary to respond to the challenge of preserving our natural vegetation.

In conclusion, let me say that if this subcommittee can foster the concrete and affirmative steps that the Department of the Interior must take and take very soon, then it will have given this country a very pleasant 200th birthday present; it will have paved the way toward a renewed awareness of the natural beauty, be it so large or so small, of this Nation.

Respectfully submitted,

GARY LYONS,
Chairman of the Conservation Committee
and member of the Board of Directors.

Enclosures.

THE CACTUS & SUCCULENT SOCIETY OF AMERICA, INC.,

March 22, 1976.

Hon. NATHANIEL P. REED,
Assistant Secretary for Fish and Wildlife and Parks, Department of the Interior, Washington, D.C.

DEAR MR. REED: There are rumors coming out of Washington that there is a shake-up in progress in the Department of the Interior's Office of Endangered Species and that the main thrust of this shake-up is to further frustrate the publication of endangered and threatened species of vascular plants in the Federal Register in accordance with the Endangered Species Act of 1973. The plant species involved are those listed in House Document No. 94-51, Serial No. 94-A, the Smithsonian Report on Endangered and Threatened Plant Species of the United States.

I received assurances from officials in the Office of Endangered Species that publication of plant species in the Federal Register would begin in late March of this year. But according to my more recent information, the proposed bureaucratic changes will serve only to make implementation as well as public oversight of this project hopelessly difficult, if not impossible. It is my understanding, based upon information supplied to me by Monitor, Inc., of Washington, that the proposed changes in the Office of Endangered Species will result in placing this Office in an advisory capacity and will not comment upon endangered species unless specifically requested to do so. By submerging this Office into a larger research office, it is suggested that the present operation will be fractionated, decisionmaking eliminated, and it will be more difficult to draw criticism for inaction from the public and from Congress.

On behalf of the five thousand members of the Cactus and Succulent Society of America, I wish to express concern over this recent development within the Fish and Wildlife Service and I do hope that you will use your good offices to take prompt action, without further delay, to publish the lists of vascular plants contained in the Smithsonian Report. Hundreds of thousands, if not millions, of cacti and other succulents are being collected in this and other countries to be sold in the U.S. Many of these plants are endangered or are protected by law and in some instances are collected and shipped illegally. There is one documented account of a single operation in west Texas, close to Big Bend National Park, that is collecting and selling at least five hundred thousand cacti per year. There are also accounts of wholesale gathering of cacti from Big Bend National Park itself. On the basis of this knowledge, we urge that there be no further delays in protecting our native flora as there is a desperate need for this protection

I do hope that you will give this matter your serious consideration.

Sincerely yours,

GARY LYONS, *Chairman.*

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., April 12, 1976.

Mr. GARY LYONS,
Chairman, Conservation Committee, The Cactus and Succulent Society of America, Altadena, Calif.

DEAR MR. LYONS: This responds to your March 22 letter concerning the proposed reorganization of the Office of Endangered Species under the Fish and Wildlife Service.

We appreciate your interest in the implementation of the Endangered Species Act of 1973. It is correct that a three-part reorganization of the Office of Endangered Species is being developed, and Monitor, Inc., has expressed its views on this subject to the Director of the Fish and Wildlife Service. Please be assured that these views and those of your organization are being considered. The reorganization has also been discussed with the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Merchant Marine and Fisheries Committee.

Under the Service's proposal, it is planned to create a Federal Wildlife Permit Office, an International Affairs Staff, to move the biological support branch of the present Office of Endangered Species and International Activities to the

Division of Habitat Preservation Research, and to have management and administrative branches within the newly constituted Office of Endangered Species.

The Department of the Interior is responsible for evaluating the conservation status of the plants in the Smithsonian Institution's report, inasmuch as we accepted this report as a petition and published a notice of review of those taxa in the July 1, 1975, Federal Register. The United States has also ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora, which includes all Cactaceae and many succulent plants. An Executive order has been drafted regarding implementation of this convention, and, should it be signed, we intend to propose regulations with regard to plants, and to propose some 1,700 U.S. plants as endangered species.

By copy of your letter and our response, we will bring the problem regarding cacti in Big Bend National Park to the attention of the National Park Service.

We appreciate and share your concern for plant conservation, and hope that this information is helpful. If we may be of further service, please let us know.

Sincerely yours,

CURTIS BOHLEN,
Deputy Assistant Secretary for Fish and Wildlife and Parks.

SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION,
Washington, D.C., May 14, 1976.

Senator WENDELL FORD,
U.S. Senate,
Washington, D.C.

Dear SENATOR FORD: To complete the documentation on my oral testimony on reauthorization and oversight of the Endangered Species Act, I enclose a copy of the Marine Mammal News, April 1976 with a request that the article on enforcement by the National Marine Fisheries Service of the Act be included in the record of the hearings.

Also enclosed is the report cited from the British Department of Trade and Industry for 1974 showing importation of sperm whale oil into the United States. I am informed that to find out whether the sperm oil was imported in 1973 would require two months of work and an expenditure of $4,000 to $5,000. Further, the information would be released for enforcement purposes only! The general public would have no access to it.

It seems there is a category known as "marine oil" in which oil from any inhabitant of the oceans, from anchovies to whales, may be classified by the U.S. Government. Clearly, this primitive means of classification should be immediately changed, and a request from this Subcommittee would, undoubtedly, be most valuable in bringing about essential rulings so the Congress and the public will at least be able to find out whether laws protecting endangered species and marine mammals are being violated or not.

There is no way to distinguish between old and new sperm whale oil. To distinguish any kind of whale oil by laboratory test, once the oil has entered a product, is a long painstaking process. To our knowledge there is only one small laboratory available to the U.S. Government for purposes such as this. The work is months behind schedule. Thus, illicit dealing in sperm oil would be child's play were the Congress to permit sales of sperm whale oil on interstate commerce.

To quote from my notes on the hearings, January, 24, 1976 in District Court. Judge Gasch asked whether Werner G. Smith continues to sell sperm whale products in violation of federal law. Mr. Nichols, the attorney for Delbay, who had purchased spermaceti from Werner G. Smith replied "It takes the position there is no violation."

Judge Gasch supported the Department of Commerce in its seizure of Delbay Pharmaceutical products. He stated in part, "If plaintiff's spermaceti were allowed to enter interstate commerce, it could greatly increase the enforcement difficulties. A total ban is easier to enforce than a partial ban. If there were a continued market in this country for spermaceti, it might encourage the illegal taking of sperm whales to supply this market. A total ban may also encourage the search for other products, both natural and synthetic, to replace those derived from endangered species. This too will discourage the illegal taking of such species. It is clear that Congress intended to extend the prohibitions of the 1973 Act to

their widest possible reach and that the extension of such prohibitions to include plaintiff's spermaceti may well serve the Congressional intent in enacting the 1973 Act."

Judge Gasch showed a basic understanding of a major provision of the 1973 Endangered Species Act: that commercial activity in the parts and products of endangered species cease in order to prevent the taking of further endangered animals.

We urge that no weakening of the Endangered Species Act be made.

Sincerely,

CHRISTINE STEVENS,
Secretary.

JAPANESE GOVERNMENT STATISTICS FROM MINISTRY OF AGRICULTURE
(FROM IMPORT & EXPORT HOUSE, DEPT. OF TRADE AND INDUSTRY, 1974)

1973

Japanese Whale Oil Exports by Country	Yen
South Korea (baleen)	117, 252, 000
South Korea (sperm)	1, 302, 000
Taiwan (sperm)	6, 344, 000
Philippines (sperm)	853, 000
Netherlands (sperm)	1, 048, 436, 000
United States of America (sperm)	53, 666, 000
Fresh whale meat to Indonesia	165, 000
Canned whale meat to West Germany	926, 000
Canned whale meat to Malaysia	2, 566, 000
Pet food (containing whale meat):	
United States of America	723, 823, 000
Australia	106, 235, 000

1972

The Netherlands imported over 90% of the sperm whale oil.
The U.S.A. imported none.

[From the Marine Manual News, April 1976]

NMFS is preparing to take criminal or civil action in some 275 cases of possible violation of the Endangered Species Act through illegal sale of sperm whale oil and scrimshaw products. The possible charges stem from two separate investigations recently carried out by NMFS enforcement agents, but no further action will be taken until after Senate hearings, scheduled for 6 May, on proposed amendments to the federal law that would permit sale of inventories of the products held prior to enactment of endangered species amendments in 1973. The House has already approved such legislation (MM News, Feb 76), but the Senate bill, passed a year ago, addressed only the scrimshaw issue.

Target of the sperm oil investigation is Werner G. Smith Inc., Cleveland, OH. On 25 Mar, agents from NMFS' Northeast Region seized by subpoena the company records, including invoices and inventory documents, dating back to 1973. While no product seizures were made (largely due to storage problems), involved is an estimated 10 million pounds of sperm whale oil valued at some $7.5 million. Records in hand could lead to some 250 cases involving customers of Werner G. Smith. NMFS officials would not identify any of these companies, which apparently are cooperating in the investigation, but noted the issue involved several "well-known household products."

The scrimshaw investigation stemmed from discovery of products for sale at Disneyworld, Orlando, FL, which also agreed to cooperate with NMFS. Enforcement agents then raided the Massachusetts-based supplier (which they decline to identify, pending possible indictment) and "caught him with the goods," MM News was told. Records could lead to some 24 cases of violations, involving about $1 million in shrimshaw products. Among the customers, NMFS said, are two other Florida operations, Sea World Inc. and Planet Ocean, both apparently cooperating. Total scrimshaw inventory of these three facilities is about $750,000.

NMFS' decision on whether to proceed with charges may depend on Congressional action on the proposed amendments to exempt certain stocks of products from provisions of the Endangered Species Act. Should this be approved, and

should these recent cases qualify for exemption, there is a legitimate question of whether the federal government should "get tough" with parties violating the law during the interim period. This will be a technical decision to be made at a policy level, an NMFS enforcement official stressed.

[From the African Wildlife, vol. 29, No. 4]

Point of No Return?

(By A. Jacot Guillarmod)

Once the Malachite sunbirds made a summer trek to Lesotho's high mountains to sample the nectar of a blaze of aloes.

The sunbirds no longer fly to the mountains.

There are just not enough flowers anymore.

Aloe polyphylla, the spiral aloe of Lesotho, was discovered to science some 60 years ago when F. H. Holland collected it on Phurumela, a mountain in Lesotho. In 1923 it was named only in manuscript by Dr. S. Schonland of the Albany Museum, and it was not until 1934 that the name was formally publisher (*1*). Twenty five years ago it was first brought to the notice of the public through Reynolds' (*2*) wellknown book on South African aloes.

Since then the story has been tragic. This plant has been almost eradicated from its mountain homeland, and while a few specimens may flourish (or more often die from faulty treatment) in gardens, it is now rare where it once grew in dense groups of a dozen or more individuals, scattered over the hill-slopes. Senseless greed and the desire for status symbols has worked against nature to such an extent that in 1970 D. Ambrose (*3*) estimated there were fewer than 1,000 plants left in the natural habitat, and he knows the Lesotho mountains well and in detail.

My own estimate now is that the population in nature is probably down to below 500. When travelling along the Mountain Road in Lesotho I have often been offered large, wilting plants of this aloe. The tribesmen have been sent scattering with strong reprimands in their own language, telling them this has been an illegal practice (*4*) for 40 years. But they are probably back as soon as I depart. They may need the money for food or clothing, but what of the country's future plant stocks? How many thousands of these aloes have been taken out of the country in the boot of a car, completely illegally, only to shrived and die when given the usual treatment for aloes? A few people may even manage to grown the plant, but that does not replace it in its homeland.

This aloe is not for the succulent garden, but a site where the roots are bathed in fresh water (*5*). It is typical of the well-drained hill slopes (more than 2,400 metres above sea level), abundantly supplied with clean, pure rainwater seeping out of rock crevices.

Then it grows in fascinating five-spiralled leaf arrangement, without the dried purple leaf-tips characteristic of lack of water.

The leaves are clear jade green striped with paler opalescent lines and have a few strong prickles on the margins and offset keel, but the flowers are not so striking, being a dull salmon colour. These open from just above leaf level on a rapidly extending stem, as the flowering period is brief during the growing season in their mountain home.

Closely associated with this plant are others in the same mountains (*6*)—*Kniphofia caulescens*, the long-stemmed or trunked redhot poker of marshy situations; other redhotpokers on grassy slopes; *Phygelius capensis* always near streams; some species of *Cyrtanthus* and *Cotyledon* and other plants which have long, tubular, reddish flowers, although these too are becoming rarer.

However many areas where these genera of plants occur and once grew in quantity in some cases, have been destroyed. The mountain zone of Lesotho is now being exploited (*8*) owing to population pressure from the lowlands and the consequent extension of farming activities and by road-making and diamond-mining, in the high-lying areas up to 3,000 metres and more, where *Kniphofia caulescens* was once so plentiful that the expanse of scaralet flowerheads could be seen from kilometres away, the bogs and marshes are now eroded and lost Stream banks are trampled by cattle and sheep so that the *Phygelius* disappears, and the grass-covered slopes are now heavily overgrazed. The effect on *Aloe polyphyllax* is disastrous and this plant is nearing extinction through these factors, as well as the selling off of large plants of flowering age.

The aloes and other flowers mentioned usually have a plentiful supply of nectar beloved of such birds as the Malachite sunbird (*7*). While sipping the nectar, these birds transfer pollen from anthers to stigmas in the same or other flowers and thus bring about pollination, without which fertilization and seedset cannot take place. Only such long-beaked species as the Malachite sunbird can effectively perform this pollination process, as the flowers are so constructed that smaller-beaked birds cannot reach the nectar and there are few insects in the mountain sufficiently large to act as pollinators.

However sunbirds are no longer attracted to the small patches of aloes remaining, even if these should flower, as there is so little in the neighbourhood to make it worth their while.

In the lowlands, where some plants grow in gardens, there are usually other plant species present to provide the birds with food and here seed is set. But again there are difficulties, as beetles eat the young fruits and moths lay eggs in the capsules where the caterpillars develop and destroy the ripening seeds.

In the mountains what little seed successfully develops may fall on suitable substrate and germinate, after a maturation period during the long, bitterly cold Lesotho winter at high altitudes. However seedlings of any age are hard to find around the clusters of plants still in their natural habitat. This may be the result of several factors, but there is one which applies also to other plants, notably *K. caulescens*, and that is the frost-heaving which takes place on exposed soil during winter. Small ice spicules form from the water in the soil and push this into ridges and furrows, loosening the slender root hold of seedling plants. The subsequent exposure kills them.

Without these replacements, and because of the trampling and other destructive forces, *Aloe polyphylla* and its linked species, the other nectar-providing plants, are rapidly dwindling. The most serious case is that of the aloe. Only complete and careful protection of the plant in its rightful habitat, or propagation from seed, and replacement of plants in such habitats (also with protection) can alter this position. The natural pollinators will not return until this is done, and meanwhile the aloe faces the fate of the long-dead dodo of Mauritius—something strange and wonderful in nature, known to man for a few years and utterly destroyed by his thoughtless or selfish activities. The point of no return is almost here.

(*1*) Pillans, N.S., 1934. Plants—new or noteworthy. *S. Afr. Gardening & Country Life*, 24: 2671.
(*2*) Reynolds, G. W., 1950. *The Aloes of South Africa.* Trustees, Aloes of South Africa Book Fund, Johannesburg.
(*3*) Ambrose, D. Personal communication.
(*4*) Basutoland Government, 1938. Resident Commissioner's Notice, 20th Sept., 1938 (ordinance prohibiting the removal, export, sale or destruction of certain plant species, including *Aloe polyphylla*. Subsequent proclamations have upheld this).
(*5*) Jacot Guillarmod, A., 1969. Notes on *Aloe polyphylla*. Lesotho (*Basutoland Notes and Records*) 8: 30–36.
(*6*) Jacot Guillarmod, A., 1971. *The flora of Lesotho.* J. Cramer, 3301–Lehre, Germany.
(*7*) Skead, C. J., 1967. *Sunbirds of southern Africa.* A. A. Balmema Cape Town/ Amsterdam.
(*8*) Jacot Guillarmod. A., 1969. The effect of land usage on aquatic and semi-aquatic vegetation at high altitudes in southern Africa. *Hydrobiologia* 34: 3–13.

"That the Peregrine Shall Live" (By David R. Zimmerman)

[From the Audubon, 77 (6): 38–41, November 1975]

The peregrine falcon, a swift, solitary raptor that in nature shuns man, has become a conservation *cause célèbre*, and the attempt to "restore" the species in the eastern United States, where it no longer exists, has become a media event.

Wide and enthusiastic press coverage accompanied the placement of four captive-bred peregrins atop a tower in Maryland last spring. A few days later, in the middle of the night, the fledgling falcons were rescued minutes before a lightning strike exploded and burned their plywood "eyrie." News of the rescue, and the assurance that the peregrins were safe and well, were promptly carried to faraway television viewers and newspaper readers.

Indeed, the peregrine seems to have surpassed the whooping crane as a symbol of Americans' concern for environmental degradation, and the embodiment of their hope for its cure. The reality, regrettable to say, is that the peregrine's peril is far from ended.

The peregrine falcon is the principal known victim of DDT and its related chemical pollutants. Exactly a decade has passed since a landmark conference in Madison, Wisconsin, at which the species' precipitous decline in North America and Europe was documented, and the case convincingly laid to DDT-induced thinning of its eggshells. Only the ornithological establishment and the federal wildlife bureaucracy discounted what to others was starkly clear: in areas where organochlorine pesticides were used, the peregrine was on the road to extinction.

Since Madison, the peregrin has become a principal subject of DDT-and-wildlife research, and those studies have shown it to be one of the most vulnerable and most sensitive victims of pesticide-induced reproductive failure—though by no means the only one. The peregrine is vulnerable because it feeds mostly on other birds, at the top of a long, pesticide-concentrating food chain; rodent-eating raptors like the red-tailed hawk, atop shorter food chains, have been much less severely depleted.

Compounding the peregrin's vulnerability—and accounting in large part for its continuing distress—is the exquisite sensitivity of its reproductive processes to DDT toxicity, a trait that it shares with the similarly striken brown pelican. Chemist David B. Peakall of the Canadian Wildlife Service in Ottawa reports that peregrines suffer reproductive failure when DDT, the breakdown product of DDT, reaches 20 parts per million in their eggs. Ducks and herring gulls do not experience reproductive loss until DDT levels reach 100 ppm, while pheasants and chickens fall victim only at several hundred ppm of DDT.

Why the peregrine is so acutely sensitive, Dr. Peakall says, remains a mystery.

Enhancing its fascination, the peregrin is a boldly handsome and dramatic bird—an agile predator that strikes down its prey in high-speed dives and kills with its powerful taloned feet. Observers who are fortunate enough to have seen its hunting stoop, or the male's rolling, diving mating display, are struck by the magnificance of the peregrine's flight.

"I recall very vividly a little drama that took place at Mount Sugarloaf," wrote one of the peregrine's keenest admirers, Joseph A. Hagar, who was state ornithologist and peregrine warden for Massachusetts in the 1930s. "I had been watching [a lone male] for more than an hour as he sat quietly on a dead pine above the cliff. Suddenly, at about 9 o'clock, he launched out from his perch and began to sail back and forth along the face of the cliff, repeatedly giving the *wichew* or rusty-hinge note. A moment later I spotted a large female peregrine coming up the valley from the south, some 200 feet above the mountain.

"Arriving abreast of the cliff, she began to describe wide circles over the crest, flying very leisurely and seeming to watch the proceedings below her; the [male] redoubled his cries and flew from one shelf to another, alighting for a moment on each one and then swinging along to the next, with every appearance of the greatest excitement."

At another cliff, Hagar watched a male peregrine achieve the peak of his courtship display as he soared in narrow circles 500 feet into the sky;

"Nosing over suddenly, he flicked his wings rapidly fifteen or twenty times and fell like a thunderbolt. Wings half-closed now, he shot down past the north end of the cliff, described three successive vertical loop-the-loops across its face, and roared out over our heads with the wind rushing through his wings like ripping canvas. The sheer excitement of watching such a performance was tremendous; we felt a strong impulse to stand and cheer."

The peregrine long has been a creature of human myth—its name means "pilgrim hawk," the wanderer—and also of human exploitation. Falconers traditionally regarded it as second in value only to the much rarer gyrfalcon of the Far North, and it may have been first in terms of numbers used.

Falconry is of more than historical interest to peregrine conservation. The current campaign to succor the species has been engendered in large part by raptor biologists who are or once were falconers. Their knowledge and their skill in physically handling and manipulating the birds have been key reasons for its rapid progress—compared, say, to the lagging federal captive-breeding program for the whooping crane, in which each step has to be developed *de novo*. Experience that falconers have used for millennia to take birds from nature and handle them for their sport now are being employed for an opposite purpose: to put peregrines bred in captivity back into nature.

The central figure in this extraordinary drama is falconer-biologist Tom J. Cade, professor of ornithology at Cornell University in Ithaca, New York. He is an affiliate of the Cornell Laboratory of Ornithology and founder and director of the Cornell peregrine breeding project where most of the twenty-one falcons released to the wild since 1973 were produced.

At a press conference at this year's first release site, Carroll Island in Chesapeake Bay, part of the Edgewood Arsenal of the U.S. Army's Aberdeen Proving Ground, Dr. Cade said: "Falconry has provided a technology for handling and keeping birds in captivity that can be applied to the problems of propagation and—even more significantly—to the problems of reestablishing these birds in the field. By reversing the practices of falconry, you can teach a domestic falcon to become a wild falcon, just as you can teach a wild falcon to become a domestic one."

A broad coalition of government agencies and conservation organizations backs this gamble. They include the U.S. Army Materiel Command (which operates Edgewood Arsenal), the U.S. Fish and Wildlife Service, World Wildlife Fund, National Audubon Society, and Massachusetts Audubon Society. The project conceivably could have been launched without the help of falconers—if anyone had been willing to try. But Massachusetts Audubon Society ornithologist James Baird says novices would have needed twenty-five years to duplicate current efforts.

Methods to release captive-bred birds have been the Achilles' heel of many such projects, and large, solitary, migratory birds have rarely, if ever, been successfully reestablished. The peregrine releases at five eastern sites this summer were designed to exploit a falconry technique called "hacking" to introduce parentless fledglings into the wild.

Falconers often take young raptors that have not fully developed their flight muscles and have not learned to kill. To provide a juvenile bird with flying time to develop its strength, a falconer does not at first confine it. Rather, he chooses an object—a tree stump or board—on which he feeds the young raptor each day. The feeding place is a "hack board;" the bird is said to be "at hack." While free to fly about, the bird depends for food on the falconer's handouts, and so returns to the hack board each day to eat. When the bird is ready to kill for itself, the falconer must capture it—for once it can feed itself it will leave.

To reverse this procedure and "hack back" captive-bred peregrines, Cade and his co-workers drew up this schedule: The young falcons are hatched in incubators at Cornell and hand-reared for upward of a week. Then they are put in flight cages with pairs of adult peregrines for upward of two weeks, so they will imprint on their own kind rather than on their human handlers. At four weeks they are moved to high, eyrielike sites that they easily can find and fix upon when they fly afield —and to which they may return as adults, since peregrines often seek their natal cliffs to nest.

Release areas were selected for an abundance of natural prey and for the security they afforded against both human and natural enemies. Three eyries were man-made structures: a 75-foot-high gun tower on Carroll Island, from which poison gas shells once were shot at the ground below; a low platform near a decommissioned Nike missile installation at Massachusetts Audubon Society's Drumlin Farm, in Lincoln; and a platform on a low coastal island in New Jersey. Two natural sites were chosen, a historic peregrine nesting cliff near Ithaca, and another in the Shawangunk Mountains near New Paltz, New York.

Pastoral Carroll Island proved the most successful site as well as the most dramatic, in part because of its sinister past; the Army clearly enjoyed the swords-to-plowshares publicity. Ironically, the nerve gas tests that made the island uninhabitable for humans in the 1960s spared it DDT sprayings. The deadly gas is gone, too, except perhaps for a few unaccounted-for shells that add spice to research on the island.

The civilian chief of Edgewood Arsenal's Ecological Research Office is veterinarian Dr. F. Prescott Ward, who has studied the slow recovery of turtles and other wildlife on the island's "hot" downwind side during the six years since the last nerve gas test. He was in charge of the release of four fledgling peregrines, a male and three females, that were brought to Carroll Island on June 3rd by Cade and Cornell research associate Stanley Temple. As television cameras turned, Cade and Temple carried the gowky, downy chicks to the tower's top, where they were placed inside a wooden boxlike eyrie.

Bars kept the young falcons confined until mid-June while their flight feathers grew. Then tiny radio transmitters were attached to their legs so they could be tracked, and helped, if they failed to return to the gun tower. The juvenile

peregrines flew soon after the bars were removed and began to chase and strike at wild birds. To encourage them to hunt and kill, Temple and Ward released handicapped pigeons at the foot of the tower—a falconry training technique. And the peregrines learned quickly, as Ward's notes show:

JULY 2

0830.—Female No. 3 seemed reluctant to fly when I climbed the tower, but all four seemed to fly well. One of the females stooped at a blackbird just in passing.
1200.—Three birds chased a turkey vulture around the island.
1500.—A bird stooped off the tower toward a killdeer. Later, male made a definite attempt to catch a female redwing. Did not feed them.

JULY 3

0630.—One stooped several times at a meadowlark.
1530.—Took one pigeon (eyes taped) to the tower and tossed it up. All four stooped at it. A female caught it and flew in a circle to the ground. Released two more taped pigeons. They fluttered to the ground where the birds eventually flew down and killed them. No further flights this evening—seemed full.

JULY 4

1630.—Male stooped at and chased a swallow.

JULY 5

0620.—Two starlings or redwings flew past tower and all four birds did immediate stoop and chase. No catch.
0645.—Birds soaring very high on updrafts. Fantastic stoops back to tower.
1845.—All four flew after a wild pigeon which flew under the tower. No contact.

JULY 6

All birds spent night of 5–6 July in woods on lower island point.
0800.—Male and two females on poles of dock. Female No. 2 on tower eating! Not fed last night.
0900.—Checked tower. Female No. 2 still there with full gorge. No part of carcass or feathers on I-beam where she was eating. However wind was gentle NE and many long black primaries with greenish tinge on leading edge and small white tips were on ground under tower.

This first kill later was identified as an immature green heron. A crow was next, before the peregrines switched to smaller, more prosaic prey and began to shun released pigeons in favor of wild-caught quarry.

On July 19th Cade, traveling between peregrine research sites in Alaska and Greenland, accompanied Temple and Ward to the tower. Two of the four peregrines lounged in the afternoon sun, their crops bulging with the meat of wild prey. A third bird, a female, emitted the begging cry that hungry fledglings use when they pursue their parents in search of food. She had remained inept at taking prey, and her slow learning had won her the name "Ree-tard."

To show Cade the peregrines' progress, Ward carried a pigeon to the base of the tower, calling up to the peregrines as he slowly approached. Two of the birds showed little interest. Ree-tard begged. Ward tossed up the pigeon, and it was off. But it was a city bird and was disoriented in the country. Instead of racing for cover, it flew circles around the tower. On its third circle it spied a woods a quarter-mile off and veered toward it. This seemed to entice one of the pigeon-loving peregrines, which slipped off the tower in pursuit.

"A tail chase!" exclaimed Cade with muted excitement. But the peregrine apparently was not very hungry and it pursued the pigeon lackadaisically. Only as the pigeon approached the trees did it seem to sense imminent danger. It put on speed. This seemed to provoke the peregrine, which climbed swiftly above it.

They were at the trees. The peregrine stooped half-heartedly. Missed. Veered. Broke off pursuit. Wheeled and flapped back to the gun tower. And resumed its sunbath. The pigeon flew away.

"Nobody is hungry!" Ward said mock apologetically.

"They beat you to it!" Cade replied.

Rejoined Ward gleefully: "They don't want this welfare, Tom! They're catching blue jays and blackbirds and all those other things. When they catch prey once, that's it. They're self-sufficient!"

This success sheds light on the question of whether fledgling raptors require parental example to learn to kill, or rather accept only food from their parents while they develop their own killing ability. Parental guidance is not required.

Once they began to hunt, the Carroll Island peregrines were trapped by Temple for a final transaction: their leg-mouth radios were replaced with quarter-ounce tail-mounted transmitters that will be shed when the birds molt the single feather to which the units are cemented. The radios' button-size batteries were designed to last sixty days, to provide data on the birds' initial dispersal; larger, more powerful units would be needed to track long southward migratory flights. The peregrines were also given special colored plastic leg bands with large letter-number codes that can be read through a spotting scope at up to one hundred yards when the bird is perched. (The Cornell group asks birdwatchers who spot color-banded juvenile peregrines in the East to phone collect, 607–256–6585, and report the location, band color, and number.)

In the fourth week of July, when Ree-tard apparently began taking prey, the Carroll Island peregrines wandered farther and farther afield, and just at that time the batteries on their radios failed, earlier than expected. Even with the help of helicopter reconnaissance, by July 25th Ward was seeing or receiving signals from no more than one bird a day. He and Temple wondered if the peregrines would be heard from again.

They did not have long to wait.

On July 30th attorney James Keenan, at work in his firm's law library in a downtown Baltimore skyscraper twenty miles southwest of Carroll Island, glanced up—and saw a large, dark-faced bird perched on a railing outside his thirty-second floor window. He says he knew it was not an eagle or a "chicken hawk." A hurried consultation with an encyclopedia gave him the correct identity.

"At first I thought some kook had got out there and put a stuffed one on the railing," Keenan says. "But then she moved and looked straight at us. She wasn't the least bit afraid, and she stayed an hour and fifteen minutes. Then she took about ten steps, dived off, and went out of sight. I was astonished."

So was Ward when he saw the peregrine's picture in a Baltimore newspaper; lawyer Keenan had not been too surprised to notify the press. "I didn't really believe it when I was told there was a picture of our falcon in the *News American*," Ward says. But a phone call to Keenan's office confirmed that the bird carried the identifying color band. What she was doing on the skyscraper, where she was seen again a week later, was clear to Ward: she was feeding with gusto on city pigeons, which are plentiful in downtown Baltimore.

Then in mid-August, Ward heard from a birdwatcher who saw an immature peregrine stooping at shorebirds over a beach at the west end of the Chesapeake Bay bridge near Annapolis, about forty miles south of Carroll Island. Since it was too early for migrant Arctic peregrines, Ward assumed it was a hacked bird. Several days later a male and a female peregrine were spotted on Baltimore harbor grain elevators, which also abound in pigeons. No bands could be seen, but Ward believes they, too, were his birds. If all these sightings were of Carroll Island falcons, and none was seen at more than one location, all four birds were surviving on their own.

When there were still peregrines in the eastern United States they usually did not nest on human structures and did not breed on low seaside islands. The justification for using such sites, Cade says, is the abundance of shorebirds for prey; security against human interlopers; and the absence of natural enemies that the young falcons might encounter, without parental protection, at inland sites.

As it turned out, the seven young peregrines released at the Maryland and New Jersey sites dispersed without known loss. At Drumlin Farm, one of three birds disappeared; neither its body nor the transmitter was found. The worst experience occurred at the release site near Ithaca. Soon after fledging, one of the three juveniles stopped coming to the cliff eyrie for food—and when it was tracked by radio it was found dead, its head eaten off, apparently the victim of a great horned owl. A second bird died similarly ten days later; the third was recaptured and returned to Cornell. Peregrines of all ages fall victim to great horned owls. But Cade says adult peregrines with young will chase owls away from their eyries. If the Ithaca site is to be used again, the owls will have to be trapped, Cade says.

Three young peregrines released near New Paltz, New York, in August were hunting on their own and had dispersed by mid-September, according to James Weaver, the backroom expert responsible for Cornell's peregrine breeding success. The two surviving Drumlin Farm birds appeared to be the least independent of all; they had been seen hunting but not killing. However, several sightings of a

radio-equipped peregrine near Boston weeks after they were given their last handout indicates that at least one of the Massachusetts falcons was hacking it on its own.

Thus of the sixteen peregrines released last summer, three perished and one was recaptured. The remaining twelve were alive, hunting, or killing for themselves when last seen between late July and mid-September. The hope is that some of these birds will survive to reach maturity at age two or three; will return to their release sites; and will find one another and breed. However, given the small numbers freed this year and the fact that less than half of all wild peregrines fledged ever reach maturity, the odds are slim. While they will be delighted if it happens, Cade and his group conceive of 1975's efforts as a pilot program to test and improve techniques, not as an actual start in repopulating the East with peregrines; their plans call for several more years of testing release methods.

Meanwhile, Cornell and other peregrine captive-breeding centers must raise their yield to several hundred chicks yearly, instead of the present several dozen. If repopulation efforts start in the East in 1980, Temple calculates that 250 peregrines will have to be released each year until 1995—a total of 4,000 young—to build a wild population of 150 active breeding pairs. This is the number he estimates once nested each year in the East. In a cleansed and safe environment, they might produce 275 fledgling young per year.

The production of significant numbers of peregrines in captivity is in itself a major achievement that many observers insisted, until recently, could not be done. Problems, in fact, still remain. For all their success, the Cornell workers have not been able to achieve a consistent high yield, What it more, virtually all captive breeders are birds removed from wild nests. Their offspring may reproduce far less successfully, for this has been the experience with other species kept under wire.

The purpose of the Cornell project is the reestablishment of peregrine falcons in the East and Midwest, where they have been totally wiped out. But official pronouncements have been disingenuous, not to say inaccurate. For example, a U.S. Fish and Wildlife Service news release last spring said the goal was "the propagation and reintroduction of the endangered American peregrine falcon."

This is not what is being done—for it cannot be done. What is being attempted is not a "restoration" of a bird that once was present, but rather the re-creation of a peregrine population from captive stock whose origins are elsewhere.

The salient and tragic fact is that the stock of American peregrine falcons that once nested from the Atlantic Ocean west to the Rocky Mountains cannot be saved because it no longer exists. There are no reliable report of peregrines breeding in the eastern half of the United States since the 1960s. Last summer Temple and others checked 450 former eyries from Maine to South Carolina. They found no peregrines. And only a remnant population survives west of the Rockies.

The peregrine of the eastern United States belonged to the subspecies that is called the American peregrine falcon (*Falco peregrinus anatum*), whose original range, from Atlantic to Pacific, extended northward to the boreal forest and southward into Mexico. A second, more recently recognized subspecies is the Arctic or tundra peregrine (*Falco peregrinus tundrius*), which breeds across the top of the continent from Alaska to Greenland. The third and last North American subspecies is the Peale's peregrine (*Falco peregrinus pealei*), which breeds on the Queen Charlotte Islands of British Columbia and in the eastern Aleutian Islands.

Peregrines of the three North American subspecies look very much alike. Peale's falcons are the largest and darkest. The *anatum* birds also are large but marginally lighter in color. Tundra peregrines tend to be smallest and lightest in color. It was captive-bred young of this subspecies that were used in this year's experimental releases.

But the three races differ in behavior traits that critically influence their prospects. Peale's peregrines are relatively sedentry; they move southward only locally, along the West Coast, in winter. The eastern *anatum* birds, too, migrated only moderate distances; peregrine expert Joseph Hagar says adults that nested in Massachusetts appeared to move no farther south in winter than Long Island Sound.

In sharp contrast to the *anatum* and Peale's falcons, tundra peregrines are great migrators. From the Far North, they fly far south in autumn, even crossing the equator to the South American heartland.

The current status of the three subspecies also is quite different. The relatively small population of Peale's peregrines, which live for the most part far from agricultural lands, is fairly stable. Pesticide burdens are low, eggshells are only marginally thinned, and reproduction remains adequate except in a few locations.

It is the only one of the three races not listed as endangered by the U.S. Fish and Wildlife Service.

The tundra peregrines, with a population that may still number into the thousands, are in deepening trouble across most of the Arctic, although Alaskan and Canadian birds are more critically endangered than those in Greenland. Alaskan peregrine eggs now carry 40 to 50 ppm DDT, reports chemist David Peakall. "This is twice the level that the British peregrines had when they were declining—20 ppm is the critical level, above which you don't expect good reproduction. In fact, reproduction in the Arctic is terribly poor this year, and the numbers are lower than ever."

While DDT residues in many North American birds have declined recently, this has not been the case with the tundra peregrines, Peakall says. This suggests they are picking up DDT from Central and South America, where it continues to be widely used. Peregrines in Alaska prey largely on birds that also are long-distance migrants, and Peakall suspects they get "dirty" prey at both migratory terminals. The fact that Peale's falcons that nest in the Aleutians, and do not go to South America, have much lower DDT levels—of about 5 ppm—also suggests that tundra peregrines pick up most of their reproduction-crippling loads in winter, but there is no data to prove this. Indeed, there have been few studies of DDT use, DDT residues, and birds of prey in South America.

Further, there are no available methods or plans to save this most populous North American peregrine population. "There's nothing we can do but monitor the Arctic peregrine's decline," Peakall says. "It looks like it is going to go."

The plight of the tundra falcon would seem to be a waiting challenge to conservationists who prefer to save declining wild populations rather than attempt to start new ones. Ironically, though the use of DDT is banned here, the poison continues to be manufactured for export and the United States still supplies a significant part of the world market.

The American peregrine falcon, of course, is the subspecies whose survival is most precarious. It may well be that the *anatum* race is the most threatened of any of the world's twenty or so peregrine subspecies. Conceivably, *anatum* peregrines may still survive in the boreal forests where they intergrade with the tundra race. But they are *known* to exist only in the West.

Raptor biologists and state wildlife departments count and try to protect the western eyries. They are most circumspect in releasing their data because they do not want to tip off falconers to the few productive locations, for fear the young will be taken. This happened in 1972 at the famous Morro Rock eyrie in California, and the following year, rock climbers disturbed the adult pair and they abandoned their nest. That eyrie is now guarded by peregrine wardens using sophisticated detection equipment designed for Vietnam, and in both 1974 and 1975 two young were fledged.

In all, California eyries produced at least a dozen fledgling peregrines this year. But elsewhere in the West, results were less felicitous. In Colorado and New Mexico, raptor biologist James Enderson of Colorado College at Colorado Springs reports, seven active eyries produced two fledglings in 1975, compared to 1974 when ten eyries produced fourteen young. In fact, 1974 was the only relatively good year in recent memory for western *anatum* peregrines. Enderson and his co-worker Clayton M. White of Brigham Young University in Provo, Utah, estimate forty to fifty active pairs produced, at most, fifty to sixty young.

The imperiled western peregrines are subject to other human threats. One particularly vulnerable eyrie was guarded last summer by two peregrine wardens hired by state and federal agencies. Warden Marcy Cottrell says the female hatched a large clutch of eggs. Two weeks later she left the nest one morning to hunt—and never came back. Cottrell later was told that boys had been shooting guns into a nearby canyon, where there is a telephone pole and a dead tree upon which the female falcon like to perch. There was, however, no evidence that she was shot. Her mate managed to raise two of their chicks, but the others died.

That particular eyrie faces other perils. There are Indian ruins nearby, and the Bureau of Indian Affairs and the U.S. Forest Service, which owns the land, are eager to develop them as a tourist attraction. "There are so many Indian ruins, and the birds are so rare," Cottrell says, "that I think they should close it down for the sake of the birds."

The continuing distress of the western peregrine population particularly puzzles raptor biologists because, unlike tundra peregrines, they appear not to migrate south into areas of heavy DDT use. The hope is to save them by methods like double-clutching: a nesting pair's first clutch of eggs is taken and distributed to other, nonproductive nests, which stimulates the first pair to produce a second clutch. Biologists also hope to add eggs from captive-bred western *anatum* pere-

grines to nests where reproduction has failed, and the National Audubon Society, with a grant from the estate of George Whittell, has funded a peregrine breeding facility at Fort Collins, Colorado, to further this effort. But only a few of these falcons are held in captivity, and thus far the have not bred well.

Frustratingly, the western peregrines may not survive despite conservationists' efforts. Even if they do, these birds cannot be expected to produce surplus stock for use in the East. What is more, while an *anatum* peregrine from New York and one from New Mexico technically were of the same subspecies, their native environments, and so possibly their genetic makeups, were strikingly different. Western birds might not adapt to weather and geographic conditions in the East.

What, then, are the choices now that is generally accepted that the eastern peregrine is extinct? One choice is to write the falcon off the list of resident species. The other choice is to replace the *anatum* birds with peregrines from elsewhere.

Raptor experts and conservationists who have never practiced falconry agree with Cade and his associates that a somewhat different peregrine in the East is preferable to no peregrines at all. Dean Amadon, director emeritus of the Department of Ornithology at the American Museum of Natural History, has said: "If we can get any peregrine to take in these areas, for goodness sakes, let's do it!"

In Massachusetts, former peregrine warden Joseph Hagar calls the effort "well worth trying." And Massachusetts Audubon Society's executive vice-president, Allen H. Morgan, says: "Inaction is preferable to action in some cases. But in others, where man clearly was responsible for the demise, then its appropriate to try to right the balance. I have no objections to another subspecies of peregrine because I think the subspecies bit is badly overdone."

Speaking for the National Audubon Society, Executive Vice-President Charles H. Callison says: "We're trying to reestablish the species, but not the race, because we no longer have the breedings stock from the northeastern United States. That's the best we can do."

From the practical viewpoint, the key questions are the availability and suitability of exotic stocks. The peregrines that falconers have lent to Cornell and other breeding projects are Arctic birds, and they are the most numerous. Peregrines may live twenty years, and Cade has hoped at first to find eastern *anatum* birds in falconers' hands. But none turned up. The reason, falconers say, was their discovery in the 1930s that migrating Artic peregrines trapped on Atlantic barrier beaches in autumn were stronger and more suitable for their sport. So for the most they stopped taking fledgling eastern peregrines.

Tundra peregrines appear to be genetically programmed to migrate long distances to the south, where DDT is heavily used. They similarly appear to be programmed to seek Arctic photoperiods—of twenty-hour day length—in which to breed. So released tundra birds may overfly the temperate zone "eyries" from which they fledged when they feel the mating urge.

Peale's peregrines, which nest only about ten degrees of latitude north of current release sites, thus might be more successful in eastern locations. They have the added advantage that they do not migrate long distances and would be less likely to winter in areas where DDT continues to be heavily used. The Cornell group hopes to have enough Peale's offspring to begin releasing them next spring through hacking stations. They also are breeding the Spanish peregrine (*Falco peregrinus brookei*), a race that, unlike North American peregrines, has through centuries accommodated itself to living close to man. It nests near villages on castle battlements and church towers, and feeds largely on pigeons—which could win it warm welcome from American city fathers.

Experiments to determine the best stock and release methods will take several years. Their issue remains in doubt, and Cade himself concedes: "I can't think of another project of this scope that has been successfully performed."

Two obvious—and unresolved—problems are whether the partly human upbringing of released peregrines leaves them too trusting of man, and whether the falcons will be tolerated by people who could harm them. In 1974, falconer-biologist Heinz Meng released two peregrines on the campus of the State University of New York in New Paltz. Following a threatening phone call—"Can't you do something about those killer birds on campus!"—a wing of one peregrine was found, severed from its body. The second bird vanished.

A hack station was planned last summer at Mount Sugarloaf in Massachusetts, where Hagar had thrilled to the birds' mating ffights forty years before. A favorable news story appeared in the local Greenfield newspaper, *The Recorder*. A few days later, in an editorial titled "Why all the fuss?" the paper complained that "the songbird population . . . will find life just a little more difficult [and] farmers will have their hands full again keeping young chicks, ducklings, and

turkey poults away from the claws of this killer." A columnist added, "It is incredible that so much human love can be spent on a killer."

The Mount Sugarloaf release was canceled out of fear for the birds' safety. Later, Massachusetts Audubon Society's James Baird wrote to the newspaper to condemn the "inaccuracies and distortions" and "shallow thinking" of its opinion-makers.

A more general view comes from Joseph Hagar, who protected Mount Sugarloaf peregrines in an earlier age when the major human threats were egg-collectors and falconers, not pesticides and a bad press. "This is just one of those senseless things that sentimental people indulge in," Hagar says. He hopes opposition dissipates so future years will see the restocking of some of the commonwealth's dozen natural eyries. "As far as I know, they're all usable. None has changed very much."

One day last summer Hagar, now in his eightieth year, came with his son to the abandoned Nike installation at Drumlin Farm to watch raptor biologist Stanley Temple work with the peregrines. When Temple released a pigeon in a nearby field, one of the fledgling peregrines launched itself from the station's tall radar tower. In a shallow, unskilled stoop, it sailed down onto the pigeon. Overlooking its novice ability, Hagar exclaimed:

"It's beautiful!"

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PLANS FOR MANAGING THE SURVIVAL OF THE PEREGRINE FALCON

(By Tom J. Cade)

INTRODUCTION

The Peregrine, more than any other threatened bird, has focused public attention on the problems of survival for raptors in the closing decades of the 20th Century. No other species evokes so much discussion, so many divergent and opposed views. I shall argue for management, in its broad sense, as the best way to insure the survival of the Peregrine and other birds of prey in an increasingly man-dominated world, rather than relying solely or mainly on "complete protection" to safeguard dwindling raptor populations.

First, some words of wisdom, not my own: "We of the industrial age boast of our control over nature. Plant or animal, star or atom, wind or river—there is no force in earth or sky which we will not shortly harness to build 'the good life' for ourselves.

"But what is the good life? Is all this glut of power to be used for only bread-and-butter ends? . . . Are we too poor in purse or spirit to apply some of it to keep the land pleasant to see, and good to live in?

"Every countryside proclaims the fact that we have, today, less control in the field of conservation than in any other contact with surrounding nature. We patrol the air and the ether, but we do not keep filth out of our creeks and rivers. We stand guard over works of art, but species representing the work of aeons are stolen from under our noses. . . . In a certain sense we are learning more rapidly about the fires that burn in the spiral nebulae than those that burn in our forests. . . ."

Does that sound like some *avant garde* member of the environmentalist movement speaking? The words certainly have the ring of the 1970's in them, do they not? They speak to the central issues of our times as far as environment is concerned, but they were actually written in 1932—41 years ago—in Madison, Wisconsin, by Aldo Leopold. They appear in the preface to a textbook with the unassuming title, "Game Management" (Leopold, 1933).

Leopold goes on to say: "Control comes from the co-ordination of science and use.

"This book attempts to explore the possibilities of such co-ordination in a single, limited field—the conservation of game by management. Its detail applies to game alone, but the principles are of general import to all fields of conservation.

"The central thesis of game management is this: game can be restored by the *creative use* of the same tools which have heretofore destroyed it—axe, plow, cow, fire, and gun. A favorable alignment of these forces sometimes came about in pioneer days by accident. The result was a temporary wealth of game far greater than the red man ever saw. Management is their purposeful and continuing alignment.

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"The conservation movement has sought to restore wild life by the control of guns alone, with little visible success. Management seeks the same end, but by more versatile means. . . ."

The basic idea of game management has been around for a long time. Leopold, for example, calls attention to the elaborate techniques of management employed in China under the Great Kublai Kahn, as described by Marco Polo. But as a science in the United States, game management—or wildlife management as it is now more generally applied—is of rather recent origin and essentially dates from the time of Leopold in the 1920's and 1930's, having received its first great impetus during the New Deal Administration of Franklin D. Roosevelt.

The application of the principles of wildlife management to birds of prey *for their conservation* is very new indeed and is just beginning to replace the outmoded practices of predator control, which for centuries have been the main kinds of "management" directed at raptors. It is encouraging to note, for instance, that the State of Colorado now has a full-time raptor biologist on the staff of its wildlife department. Also, that the Canadian Wildlife Service has an experimental program in raptor management under way in Alberta, where both field techniques and captive propagation are being carried out on an impressive scale, while the Rare and Endangered Species Program of the U.S. Fish and Wildlife Service has several long-term projects concerned with various birds of prey.

We are at the beginning of some exciting times as far as man's relations with the birds of prey are concerned. There are going to be some revolutionary changes, and I think we are going to see some important results in preserving habitat, restoring habitat, and even improving habitat for raptors, as well as in replenishing lost stock where species have been extirpated.

Here are one or two quick examples of demonstrated success that presage future application on a much broader scale. In Alberta, Richard Fyfe has been able to increase the number of nesting pairs of Praire Falcons on a stretch of cliffs by dynamiting additional potholes for nest sites. In one area where there had been seven pairs nesting, he was able to increase the population to 11 pairs by placing nesting sites between the original pairs. But this was in an area where the falcons feed on ground squirrels. In another area where they feed on birds, additional sites effected no change in the number of breeding pairs. In the first case, nesting sites apparently were limiting, whereas in the latter instance food supply seems to have been more critical.

The augmentation of breeding pairs resulting from the use of man-made nesting structures has also been well demonstrated for the American Kestrel and the Osprey. One of my graduate students, Paul Spitzer, has also shown the feasibility of supplementing the productivity of remnant Osprey populations, whose reproduction has been severely affected by organochlorine poisoning in the Long Island South region, by transferring healthy eggs or young from other Osprey populations to these failing nests. In 1972, five of these fostered young returned in their third year of life to the region of their foster nests, and three of them joined the breeding population there.

How do we go about managing birds of prey? As Leopold pointed out more than 40 years ago, the principles are known; they only need application to the raptors. The first thing that must be done for any species is to inventory the breeding stock—find out how many nesting pairs there are, what their productivity is, and then determine what the critical limiting factors are on numbers, reproduction, survival, and so on. Then, if need be or if it is deemed desirable to do so, we can set about to manipulate those factors to favor larger numbers or greater productivity, just as Richard Fyfe has begun to do with his Prairie Falcons. Essentially what we need to have in hand is a good knowledge of the basic population ecology of the species to be managed. We do not yet have this basic information for very many species of our native raptors in North America, except for some of the more popular species such as the Peregrine.

THE PEREGRINE, A CASE HISTORY FOR THE APPLICATION OF MANAGEMENT

After the decline of the Peregrine in Europe and in North America became generally known in the late 1960's, and particularly when the involvement of DDT became clearly established shortly after the Madison Peregrine Conference in 1965 (Hickey, 1969), various concerned groups of people—conservationists, research biologists, ornithologists, aviculturists, and falconers—began to think about ways to do something to save the Peregrine. Obviously the first thing that needed doing was to get some effective government restraints placed on the use

of DDT, and the Peregrine became a *cause celebre* in the great DDT debate of the past six years. After a long and bitter confrontation in the courts and before various hearing examiners, that issue now appears to have been settled in favor of the Peregrine and other wildlife, at least as far as continued use in the United States is concerned (Wurster, 1973), and we can hope for a time when chemical contamination of their food supply will no longer be a serious problem for falcons.

Meanwhile, four basic plans of action for saving the Peregrine have emerged. While they are not mutually exclusive and, indeed, should be integrated into one over-all program, they tend to be espoused by different groups of proponents who disagree in their philosophy for the preservation of species. The four plans are: (1) increased legal protection, (2) preservation of essential habitat, especially nesting sites, (3) management of wild populations, and (4) captive propagation for "domestication" and for eventual restocking of vacated range.

Legal protection.—Despite generally favorable legislation protecting the Peregrine in most states, and now also by federal law and international agreements, providing maximum legal protection to the remaining Peregrines has a long way to go to achieve any practical result. There are three principal threats to birds of prey, the same three that all forms of wildlife must face. The first is "overkill" or over-exploitation by man for whatever reasons—predator control, "sport" shooting, commercial trapping for the pet trade and falconry, and so on. The second is outright destruction of natural habitats or the degradation of habitats to the point that they can no longer support raptorial bird populations, brought about by man's technological uses of the land. The third is chemical pollution of ecosystems by persistent poisons, such as DDT and PCB, chemicals that magnify as they move up food chains to become highly concentrated in the bodies of predatory birds and that often act, even at sublethal concentrations, to alter reproductive performance and to cause population decline. Legal protection addresses itself only to the first of these hazards.

Direct killing or molestation by man is *the least* important threat to birds of prey, some of the recent spectacular cases of massive eagle kills in the West notwithstanding, and notwithstanding the much propagandized Morro Rock incident in California (McNulty, 1972). Except for very localized instances involving a few species only, there are no data to support the contention that direct human depredations, of any sort, have played an important role in permanently decreasing raptor populations. All the shooting that used to take place at Hawk Mountain, however much we decry it on esthetic and moral grounds, all the winter Golden Eagle shooting in Texas and elsewhere, the bounty-hunting of Bald Eagles—for years—in Alaska, and all the egg-collecting merely took a fraction of the natural, excess production of individuals that characterizes any healthy species population. These activities exerted no significant, long-term impact on the *breeding populations*, which have maintained densities that are basically determined by the biological adjustments of the raptors to environmental influences other than human predation, chiefly to qualitative and quantitative changes in habitat and food supply. Even a deliberate and concerted attempt in Britain during World War II to exterminate the Peregrine by shooting the adults and destroying eggs and young in the nests was only partially successful, and the Peregrine population was well on its way to full recovery in the early 1950's when the DDT problem hit Britain (Ratcliffe, 1972, p. 154). These few examples, which could be multiplied, show how resilient raptor populations are to the more usual forms of direct persecution (see Cade, 1968).

Some conservation and protectionist groups are urging laws and regulations that will afford "complete protection" to endangered species, particularly the Peregrine Falcon. Complete protection means that no adult bird, young, or eggs could be taken from the wild for *any purpose*. Legal protection as a measure for saving a species from extinction can work well when the problem is "overkill"—when the take exceeds surpluses and recruitment to the breeding population is decreased thereby. In the past we have witnessed some dramatic examples of wildlife populations that bounced back from the brink of extinction after they were afforded protection. On the other hand, the California Condor, which has been the most completely protected bird of prey in North America for many years, provides an equally dramatic example of how futile complete protection can be when it is applied too late and without any latitude for alternative plans of action.

I fear that those who advocate complete protection for the Peregrine are blinded by their remembrance of better days, when our environmental problems were simple and direct. They want to apply an old remedy that worked well for a simple problem of overkill to a whole army of new environmental problems

unprecedented in their scope and nature. When the overriding problems are deteriorating habitats and chemical pollution of the environment, protection alone becomes a meaningless gesture. Management must not stop there.

There is room for much improvement in law endorcement and public attitudes before we can say we have effective protection for the Peregrine, or other birds of prey for that matter. Penalties should certainly be increased for illegal acts perpetrated against the Peregrine and other birds of prey, as I have publicly urged for 20 years (Cade, 1954; 1971). For critically endangered populations, such as those few Peregrines that still occupy aeries in the United States south of Canada, a system of state and federally organized wardens should be set up for each occupied aerie during the nesting season to intercept any unauthorized human intruders at the cliffs and to apprehend thieves. Such a cadre of wardens could importantly involve concerned citizens—youth groups, conservation organizations, and falconers—and would not require large outlays of money.

Preservation of essential habitat.—Nesting habitat continues to be destroyed or rendered uninhabitable by human land uses that disregard the locations of historic and irreplaceable falcon aeries, and in the long run the preservation of these falcon cliffs intact and free from surrounding disturbances, is the most essential action required to insure the survival of wild Peregrines. It is encouraging to note that many state and federal agencies responsible for the administration of public lands have become aware of the Peregrine and of its dependence on these few, specific habitat formations for nesting sites. Increasingly the long-range plans of these agencies take the needs of the Peregrine and other birds of prey into account, as do the numerous "impact statements" required by the National Environmental Policy Act. But there is need for constant public vigilance and for a truly national and international policy for the preservation of endangered species and endangered habitats. Ambitious development projects, such as the proposed trans-Alaska oil pipeline and the Woodchopper dam-site proposal on the Yukon River, must be carefully scrutinized for their impact on falcon aeries. The latter, for example, would flood out more than 20 known Peregrine aeries in the Yukon River valley.

The best hope for preservation of falcon habitat lies in the creation of more wilderness areas and more nature preserves of whatever sort. Since the majority of the surviving Peregrines within the borders of the United States are in Alaska, the final outcome of the present jurisdictional squabbles between the state and the federal government, and among the agencies within the federal government, which have resulted from the Alaska Native Land Claims Act, will be most significant for the future of the Peregrine in our northern wilderness state. If most of the foothills of the Arctic Slope and the drainages of the Yukon River above its confluence with the Tanana receive some kind of protected status, then a large percentage of our arctic nesting Peregrines will be secure. If the Aleutian Islands and other islands of the Bering Sea and the Pacific Northwest Coast become incorporated into the wilderness system, our magnificent maritime Peregrines (*F. p. pealei*) should also be secure for the distant future.

On all our public lands, regardless of their specified uses, restricted zones should be established around historic falcon cliffs. Each aerie should have an undisturbed perimeter around it with a radius of about half a mile in which no permanent human occupation or disruptive land use is allowed. An Interior Department policy, modeled after the U.S. Forest Service policy in Alaska to leave an uncut tract around Bald Eagle nests, is what we need for falcon aeries. A recent "Technical Note" from the Bureau of Land Management on habitat management for endangered species makes just such a recommendation (Snow, 1972).

Management of wild populations.—Several manipulative techniques have potential for increasing the numbers of wild Peregrines, and they should be tried on a limited scale to test their applicability for management.

For example, it should be possible to increase the productivity of wild pairs by the technique of "double-clutching." The Peregrine is an indeterminate layer, and most females will produce a second clutch when the first is destroyed or removed early in incubation. The old egg collectors used to take advantage of this fact and sometimes got as many as three sets in one season from the same female (Hickey, 1969, p. 27). There are even records of four. Since the advent of the DDT-thin-eggshell phenomenon, many female Peregrines lay eggs year after year but fail to hatch them because the eggs break during the course of incubation. I am told there is one female in Colorado that has laid but failed to produce any young for six years running. From our Alaskan data, I expect that most of these lost eggs are viable but are simply mechanically damaged in one way or another before hatching.

Given these circumstances, the removal of the first clutch of eggs is a justifiable way to try to increase the productivity of wild falcons. In most cases the wild female can be expected to renest with the possibility of rearing some of her own young, and where a female has a history of egg failure, taking her eggs for experimental rearing would have no impact on natural productivity in any event.

The removed eggs can be handled in two ways. They can be artificially incubated and hatched in a laboratory, or they can be fostered to other wild parents, such as Prairie Falcons or other suitable species. Similarly, any young falcons hatched artificially can either be hand-reared in captivity and later released to the wild under appropriate circumstances, or they can be fostered to wild parents.

These are all techniques that have been proved to work with one species or another. Federal and state agencies are, therefore, urged to cooperate with qualified researchers to obtain Peregrine eggs from first clutches for experimental hatching, rearing, and fostering.

Another possibility is to increase the survival rate of immature Peregrines by holding them in captivity during the first critical year or two of their lives and then releasing them back to the wild as fully matured adults. While survivorship curves and life tables have not been worked out with great accuracy for wild Peregrines because of insufficient information, various estimates of mortality have been based on available banding data from North America and Europe (Enderson, 1969; Young, 1969; Shor, 1970). Most investigators agree that not more than 40 to 50 percent of the fledged young survive beyond their first year of life, whereas subadult and adult mortality rates appear to fall between 15 and 20 percent per year. If Peregrines start breeding near the age of two years, these figures mean that for every 100 Peregrines fledged in the wild no more than 34 to 40 survive to breeding age. Potential recruitment to the adult breeding population could be increased if this rate of survival were increased.

The techniques of falconry, properly used, could result in an increased rate of survival of first- and second-year falcons. If specially qualified falconers were permitted to take eyasses or passage Peregrines with the stipulation that the falcons have to be released at the end of their first or second winter, in time for spring migration, the wild falcon populations could benefit from a bonus of adult birds added to them. Good falconers can keep a higher percentage of first- and second-year birds alive than naturally occurs in the wild. I suggest that for every 100 young taken in their first summer or fall at least 60 and perhaps as many as 75 could still be alive at the end of their second winter, if carefully managed and conservatively flown, or roughly twice the number that can be expected to survive in the wild. Diseases that are often fatal to immature falcons in the wild are usually curable today in captivity. Moreover, the captive falcon never has to face the consequences of an inadequate food supply, severe weather, or most other forms of natural mortality.

The principal unknown factor in this equation is that there are no statistical data on how successful trained falcons are after they revert to the wild. Falconers generally feel that birds properly handled and in top physical condition can hold their own equally with their wild counterparts. Unflown captives, on the other hand, should never be released until they have been brought into condition by daily flying exercise. In the falconer's parlance, they must be "hacked back" to the wild. This can be done through the practice of falconry—by daily exercise with a lure or by releasing live pigeons or other birds for the falcon to chase. When a trained falcon can swoop 100 times at a swinging lure without becoming exhausted or can "wait on" overhead for 20 to 30 minutes without perching, she can be considered strong enough to make it on her own. A falcon does not have to be taught how to hunt and kill, although serving her some bagged quarry for practice is probably a good idea. Gradually such a trained bird can be left out for longer and longer periods, until she is on her own.

There are individual records of trained falcons having been retaken a year or more after release, and there are several cases in which trained falcons have held their own against wild birds in territorial battles or in fights over food. Indeed, trained falcons have occasionally killed wild interlopers. The initial lack of fear of man is their main handicap, but they regain their wildness rapidly once they are free.

A three- to four-year experimental program involving the Atlantic and Gulf Coast migrant Peregrines could produce important results for management. Such a program would need to involve cooperators drawn from the ranks of the North American Falconers' Association and the Raptor Research Foundation, Inc., working under the direct authority and supervision of federal and state agencies, which would coordinate the program and establish guidelines. The idea

simply would be to trap a limited number of immature migrants each fall and place them in the hands of master falconers who would train the birds in the usual way but who would also agree to follow the specific guidelines established for the program and who would keep detailed, written records on their birds. The falcons, for instance, should be flown only with the aylmeri-type jess and a radio transmitter, and they should either be worked regularly at wild game, where feasible, or given bagged quarry. Some might be flown only to a lure for comparison.

Early in the spring, the falcons would be fitted with FWS lock-on bands, and possibly colored markers, and then gradually hacked back to the wild. Some might also be equipped with long-lasting radio transmitters to allow the determination of distances and directions of movements after final release. This time for release seems best because it corresponds to the normal period of northward migration, so that the falcons would soon move off into remote regions, and also because it is a time when they are least likely to be shot while reverting to the wild.

An experimental program of this sort could provide statistically treatable data on (1) what happens to Peregrines in captivity (incidence of different kinds of diseases, accidents, etc.), (2) how trained Peregrines react on being released to the wild and what they do during the first critical days after release, and(3) how well they survive over the long term after release. Information on whether they successfully enter the breeding population would be more difficult to obtain for this migrant, arctic breeding population. For this purpose it would be better to work with eyasses from the more localized, remnant populations of *anatum* Peregrines in the West.

This training and release program should also be coordinated with a greatly expanded and systematized trapping and banding program for fall migrating Peregrines, with trapping stations located at various sites along the Atlantic and Gulf Coasts. Each station would record standardized types of information and cooperate in a regional color-marking scheme like that used for the North American Swan project under the direction of Dr. Wm. Sladen.

Captive propagation and restocking.—While I have chosen to consider these two topics together, I should point out that restocking is not necessarily dependent upon a successful outcome of captive propagation. Most of the techniques for reintroduction could be carried out just as well with wild-produced young, or with young artificially hatched from wild eggs.

Today there is quite literally a worldwide effort to bring wild falcons under domestication—or semidomestication—for the first time, although the Peregrine and other large falcons have been kept by man for thousands of years. The goal is to use domestic propagation as a way of increasing the number of falcons and at least perpetuating the Peregrine and other desirable species in captivity, if not also in the wild. There are three main reasons why a number of people have been prompted to attempt the breeding of Peregrines and other birds of prey in captivity.

One concerns personal involvement and human motivation. It is what I refer to as the "Mount Everest Challenge." You climb a mountain, so I am told, because it is there to be climbed. You attempt to breed falcons, in captivity because it is a challenge to succeed at something that most people consider impossible. The breeding project becomes an exciting intellectual and technological game—a true form of recreation and competitive sport—in which science and craft become inextricably bound together in the game plan.

The second reason has to do with the human desire to keep the Peregrine—not just for now but for the future—and not just to hold it in the hand but to be able to pass on to succeeding generations of men the opportunity to see and to know what a living Peregrine is. In other words, to develop a stock of captive produced falcons for continued scientific, educational, and recreational uses, including falconry. The Peregrine has always been *the* bird of falconry, and the other large falcons follow close behind in popularity. Falconers quite legitimately do not want to lose the use of these birds. If captive propagation becomes practical, then the use of falcons in sport would no longer place a demand on the wild populations. Some conservationists are most interested in the outcome of captive propagation from just this standpoint.

The third reason is to produce a supply of falcons that can eventually be used to restock natural areas where the Peregrine has disappeared as a breeding bird. Obviously this goal could only become feasible after there has been significant abatement of chemical pollution, but the hope is that during the period while we are learning how to propagate Peregrines on a practical scale, the quality of

the environment will improve and DDT residues will diminish to a level low enough to permit Peregrines to breed successfully again, in the eastern United States for instance.

The accomplishments in captive propagation of raptors to date are encouraging, although some problems remain to be solved before a practical scale of production can be achieved. First, the production of eggs by captive females has become fairly routine for several species—the Peregrine, Prairie Falcon, Lanner Falcon, the European and American Kestrels, Harris' Hawk, Red-tailed Hawk, Goshawk, and some others. For example, in 1971, 10 female Peregrines in North America produced at least 68 eggs, while in 1972 I have information on the fate of more than 100 eggs laid by captive Peregrines on this continent. Unfortunately, most of the Peregrine eggs have proved to be infertile. Obviously the biggest problem still facing captive breeders is how to get more of these eggs fertilized. The fault lies in the mating process, which usually is not completed or is incompletely performed between captive males and females.

One technique that has proved to be helpful in some cases is artificial insemination (Temple, 1972; Berry, 1972; Grier, 1972, 1974; Grier, Berry, and Temple, 1973). I do not want to dwell on the details now but just point out that eight Goshawk eggs, six Red-tailed Hawk eggs, seven Golden Eagle eggs, and at least two Peregrine eggs (Richard Fyfe) have been fertilized by this technique in the last two or three years, and from them three Goshawks, one Red-tailed Hawk, and one Golden Eagle have grown up to fly.

Incubation is another problem. Some parents will not sit on their eggs after they are laid, and the eggs must then be artificially incubated. The hatching rate is now up to 50 percent or more of fertile eggs in incubators, but we still have some things to learn about optimum incubator conditions. These problems should be solved during the 1973 breeding season.

Parental care of the young is not much of a problem, except sometimes with the very first brood. Even pairs that fail to fertilize their eggs often turn out to be perfectly good parents if they are given young to raise.

Despite these and other problems, an increasing number of Peregrines and other raptors have been produced in captivity in the last three to four yrears. Approximately 20 Peregrine Falcons have been produced in North America in captivity, and about the same number have been raised in Europe, but half of all these young were produced in 1972 alone (Cade, 1972). We can conclude that the Peregrine can, indeed, be bred in captivity, and the situation is even more encouraging for some other species, particularly for the Prairie Falcon and the Lanner, many broods of which have been raised in captivity in the last few years.

The point I would like to make about captive propagation is that it really would only take half a dozen or a dozen pairs of proven breeders like Heinz Meng's Peale's Falcons, which have produced eight young in the last two years (Meng, 1972), in order to develop a self-perpetuating, productive colony of Peregrine Falcons. With the number of egg-laying females now in captiivity and others showing good signs of becoming so, there is reason to think that captive progagation of the Peregrine will be routine business in a few more years.

I am encouraged enough about the prospects to suggest that we should begin now to consider the problems of restocking the Peregrine in vacant habitat. As I see the possibilities, restocking will work if pairs of falcons, or potential mates, can be psychologically fixed (imprinted?) or conditioned to accept suitable nesting structures in habitat where food is adequate. Merely turning inexperienced falcons loose in the hope that they will somehow establish themselves in a strange environment will only result in the loss of valuable birds.

In the wild, Peregrines are extremely attached to specific nesting sites (aeries) and typically return to them year after year to breed, and traditions of use spanning the lives of many individual pairs often result. In North America these sites are usually cliffs of some sort, although various man-made structures have been used, and some pairs have even nested in trees or on the ground. Falconers have long known that if a trained Peregrine is regularly flown in the same area she will develop a strong territorial attachment to it and defend it by driving away or attacking intruders. Falcons quickly learn the location of their mews or hack board, their bathtub, or any other biologically significant object in their environment, and when lost over familiar territory they will return home from several miles away. From these facts it is reasonable to believe that with proper treatment a pair of trained Peregrines can be established in a given area and that through repeated, daily association with a familiar area and familiar objects the mates can be conditioned to accept a suitable structure for nesting.

Although we are a long way from being in a position to attempt the reintroduction of captive-produced Peregrines in nature on a large scale, it seems desirable to begin now to develop the techniques that will eventually be required. There are several possibilities. One would be to rear young falcons at a natural or artificial nesting site—cliff, tree nest, special nesting tower, old silo, or abandoned building—and then allow them to fly at hack until they are fully independent and catching quarry on their own. If five or six young birds were hacked from such a site and if a permanent attachment for the area develops during this period of life, then it would be reasonable to expect two birds to survive and to return at breeding age. This procedure would be wasteful of birds but minimizes the amount of human effort required.

A technique that requires more work, but reduces the number of falcons needed, is to hack a pair of young falcons in the area where they are to be established and from the structure that is to serve as the aerie, but instead of allowing them to go free after fledging, they would be taken up, trained, and flown by the techniques of falconry through their first summer, fall, and winter. In this way they could be thoroughly conditioned to a free-flying existence in the territory and allowed to develop fixed habits and associations with the habitat and with the aerie, so that when finally allowed to go wild they would be strongly attached to the area as their "home." Also, in this way the heavy natural mortality on first-year falcons in the wild could be circumvented.

Some initial experience that I have had near Ithaca, New York, with a single, three-year old eyass female Peregrine and with a single, first-year captive-produced tiercel suggest that an old barn offers good structural possibilities for an "aerie." A large room of cage area in the hayloft of a barn—with an open window high above the ground for exit or entrance onto a gravel-filled nesting ledge inside—looks ideal. The male and female can be upheld in separate, adjacent compartments, if necessary, until they have formed a strong pair-bond, and trained to fly into the window and barn to roost and out of the window to the outside for daily flying exercise and supervised hunting. The window can be fixed to close behind the birds when they enter the barn or opened to let them fly out. In this way the falcons gradually become attached to the loft as their aerie and to the adjacent countryside as their territory, after which they can be given a good deal of freedom to come and go.

This approach to restocking is probably better than fostering young Peregrines to other species. There is little doubt that fostering will work as far as the successful fledging of young is concerned. The major drawback relates to the poor survival rate of nestling and first-year Peregrines. In a fostering program, many young would be "wasted" that might have a better chance for survival in the wild if held under a falconry regimen until they are adult and then released.

If the habit of nesting on cliffs can be broken by "imprinting" or other conditioning procedures, then the possibilities for building up a substantial breeding population of Peregrines will be greatly increased, as cliffs are limiting in many areas. The fact that the former Finnish Peregrine population consisted of sympatric cliff-nesting, tree-nesting, and ground-nesting pairs suggests that tradition rather than genotype determines choice of nest site. Basket nests, such as those used in Germany for wild pairs (Hickey, 1969, pl. 60), could be placed in suitable trees in parks, refuges, and other protected areas. Special nesting towers could be erected in rich feeding areas lacking suitable natural sites, and in some instances abandoned silos or tall buildings could be adapted for use by falcons.

In the eastern United States it will be particularly important to juxtapose a suitable nest site with an adequate food supply around the aerie. This can be done either by constructing a nest structure in an area where the falcon's prey is abundant, such as a wildlife refuge, or by supplementing the wild prey around suitable natural aeries with domestically produced birds. Pigeon lofts could be established near falcon aeries. The fantastic Spanish Peregrine population, which Frank Bond and I surveyed last year in the central part of the Iberian Peninsula, is largely supported by an equally fantastic population of feral pigeons, which have been nesting in the numerous palomars around the countryside villages since the days of the Moorish occupation. The villagers eat the squabs, and the falcons catch the adult pigeons as they feed over the open fields. Significantly, also, the falcon aeries are often close to the villages and within sight of daily human activity.

DISCUSSION OF SOME UNKNOWNS

Schemes for management such as I have been describing should not be undertaken lightly on a large scale, until we have some reliable data on a number of presently unstudied aspects of such manipulations. I can do little more than

outline, here, some of the variables that I think are important to probe on a limited, experimental basis now.

1. *Double-clutching.*—While there is little doubt that the number of eggs produced by a wild female can be approximately doubled by this technique, it remains to be shown on a statistically significant basis what the natural productivity of young from second clutches is. It probably is lower than from first clutches, and the difference between first and second clutches needs to be determined in order to arrive at a valid estimate of the utility of this technique for increasing over-all production of young falcons.

2. *Imprinting and related phenomena.*—There are also several unknowns about the role of imprinting or other age-dependent conditioning experiences that may be important for the acquisition of normal, adaptive behavior in the wild. For instance, if young Peregrines are reared by Prairie Falcons, will they later form social attachments and pair-bonds with other Peregrines, or will they be imprinted to Prairie Falcons as social companions? No data exist to answer this important question. Similarly, if captive-produced falcons are hand-reared by humans, what sort of social attachments will they be capable of forming with conspecifics at sexual maturity? All we really know is that some captive raptors acquire such strong sexual fixations on their human companions that full reproductive performance is achieved with man to the exclusion of any such response with conspecifics, while others do not fixate sexually on man; but the conditions responsible for this sort of sexual "imprinting" cannot be confidently stated at this time.

There is a growing body of evidence to indicate for birds generally that fixation to habitat, to type of nest site, and to geographic locales for breeding and for wintering are determined by experiences during certain critical periods in the life cycle of the individual bird and that a type of learning similar to social imprinting is involved (for reviews, see Thorpe, 1963, pp. 417–418; Marler and Hamilton, 1966, pp. 589–593; Hildén, 1965). This hypothesis needs to be tested with birds of prey. For example, if an arctic-nesting Peregrine, which normally would winter in South America, is trapped on its first fall migration, is held during its first winter in the environs of Philadelphia, and then later is released, where will it spend its subsequent winters? Some data from Starlings (Perdeck, 1958, 1964) and White-crowned Sparrows (C. J. Ralph and L. R. Mewaldt) suggest that it would return to Philadelphia. Would such a modification of the wintering habits of a migrant Peregrine affect its chances for survival? Lacking data, one can make an argument either way, but it so happens that an old, escaped Peregrine, still wearing a bell and remnants of jesses, has been wintering in Philadelphia for the last three years (R. B. Berry, personal communication).

We can ask the same sort of question about fixation to nesting area (Löhrl, 1959) and to nest-site formations. The point is this: once we know something about these fundamental learning or associative processes, we can put them to use in management, but if we choose to ignore them, then our efforts to increase productivity in the wild and to restock vacated range will probably fail.

The "specific searching image" (Tinbergen, 1960) and the development of feeding habits and specializations on certain types of prey may also be importantly affected by experiences during certain critical or formative periods in a falcon's life. Can a falcon be conditioned to seek out and kill certain types of quarry to the exclusion of others? I think the experiences of falconers suggest they can be (Brüll, 1937). Again, there may be an important application for management. If Peregrines that are intended for restocking could be conditioned to hunt blackbirds, grackles, and starlings preferentially, they could enjoy a virtually unlimited food supply in many areas of their former range in eastern United States. The factors that influence a raptor's choice of prey need much study, as recently discussed by Mueller (in press).

3. *Deprivation of normal experience.*—The effects of deprivation of normal experience—or stimulus deprivation—on birds that are held in captivity for a long time, and particularly on those that are produced by husbandry in confinement, are related to the problems I have been discussing. Can a captive-produced falcon ever cope with the natural environment? What are the maximum tolerable limits for deprivation of normal experience that will still allow a falcon to lead a natural and productive life on release to the wild? Can a falcon that has never had experience in hunting and killing quarry during its first year of life ever develop the necessary skills to feed itself in the wild? No doubt the kinds and amounts of experiences that captive falcons are allowed to have—particularly in their first formative year of life—will measurably affect their performance upon release in nature, but nothing specific can be said beyond that safe generality.

4. Self-perpetuation in captivity.—Finally, the outcome of captive propagation will depend on the reproductive capability of F_1, F_2, . . . F_n generation falcons. F_1 reproduction in captivity has not yet been demonstrated for any large falcon to my knowledge, although it has been accomplished several times with both American and European Kestrels. F_1 reproduction is a frequent problem among captive "wild" animals, and it should be anticipated with birds of prey. The breeders of Peregrines, Prairie Falcons, and other large species should husband their F_1 progeny for further experiments on breeding and not be too eager to trade them off or to risk losing them in falconry, before we know whether one generation can succeed another in captivity.

CONCLUSION

These are admittedly optimistic and forward-looking plans, which will require a great deal of cooperation and understanding among federal authorities, state conservation departments, researchers, falconers, and the concerned public. They are worth support and united effort because the survival of the Peregrine has become a test of man's intent and ability to keep the global ecosystem intact. Our efforts in behalf of the falcons will also test the goodwill and tolerance that men of differing opinions and background are able to extend to one another for a common cause.

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STATEMENT OF THE NATIONAL PARKS AND CONSERVATION ASSOCIATION

The National Parks and Conservation Association 1701 18th Street, N.W., Washington, D.C. 20009 is a national conservation organization of nearly 43,000 members dedicated to preservation of the national park system and of the whole environment. We appreciate the invitation to present our views on the extension of authorizations under the Endangered Species Act of 1973.

NPCA has been involved in efforts to preserve and restore endangered species of plants and animals for many years. Since January 1970, NPCA has published an endangered species article each month in *National Parks and Conservation Magazine*. A booklet of four articles on endangered plants reprinted from recent issues of our magazine is appended to this statement.

In addition to the publication of articles and news on endangered species, both animal and plant, NPCA was active in support of passage of the Endangered Species Act of 1973 through invited testimony. A member of the NPCA staff served as a technical consultant to the drafters of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. NPCA has been continually active in monitoring the implementation of the Endangered Species Act of 1973, offering our comments on proposed regulations, on proposed listings of species, and on permit applications to take endangered species. For a number of years, NPCA has encouraged the establishment and expansion of "seed banks" to preserve genetic plant resources. And NPCA is carrying out a modest but important program seeking the discovery of a blight-resistant strain of American chestnut through natural selection. (We have solicited, received, planted, and are in the process of cultivating American chestnuts from all parts of the country on a farm in Maryland in a longterm effort to discover a blight-resistent strain.)

Although NPCA maintains an active effort to seek protection and restoration of endangered species of animals. we thought it would be valuable in this testimony to concentrate on the lesser known problems of endangered species of plants.

The Endangered Species Act, enacted on December 28, 1973, as Public Law 93–205, provides the mechanism for listing and thus for providing protection for endangered and threatened species of plants. Not a single species of plant has been listed under the Act yet, but recent events hopefully will mark a turning point in the efforts to protect plants. Likewise although the Convention on International Trade in Endangered Species of Wild Fauna and Flora was signed and approved by the Senate in 1973 and entered into force on July 1, 1975, none of the species listed on the appendices of the Convention have been added to our list of plants for protection under the Endangered Species Act.

The Office of Endangered Species has only two botanists charged with the crucial task of reviewing the status of hundreds of endangered and threatened plants. These botanists have reviewed the Smithsonian Institution's "Report on En-

dangered and Threatened Plant Species of the United States," which was presented to Congress on December 15, 1974, pursuant to Section 12 of the Endangered Species Act. (The Smithsonian report recommended lists of specific endangered and threatened plants.) The Smithsonian has revised its lists in cooperation with the Fish and Wildlife Service; and on June 16, 1976, FWS published a proposed rulemaking for the "endangered" portion of the revised list. This portion includes some 1,779 endangered species of plants.

Despite a delay by the Administration in publishing the proposal, NPCA congratulates the department for finally taking this action. Interior should be commended for carrying out its responsibilities.

The revised list, upon which FWS and the Smithsonian are in agreement, is a fine working tool for protecting plants. A few changes may occur as the status of species changes or as new information becomes available; but as it stands, the list is an authoritative document and following a suitable public comment period, NPCA urges quick action by the Interior Department to publish a final rulemaking listing endangered species of plants under the Act. The revised list of threatened species is now available and should be published as a proposed rulemaking. Delays in these actions could spell extinction for some species.

It should be noted that FWS has included the common names of the species listed in the recent proposal and their Canadian and Mexican ranges—actions that will be important in providing future protection for many plants. The FWS botanists have done a good job, and NPCA believes that the national effort to protect plants requires increased staffing and funding to assist them.

An April 13, 1976, executive order confirmed that the Interior Department is the U.S. management authority under the Convention on International Trade in Endangered Species of Wild Fauna and Flora and designated the Secretary of the Interior to act on behalf of the United States in regard to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. (The latter is an overlooked convention ratified by President Roosevelt in 1941 that is just being implemented. It has good potential for habitat preservation.) The proposal listing the plants was preceded by a June 7 proposed rulemaking interpreting the Act's prohibitions and scientific permit regulations regarding endangered and threatened species of plants. With the authority of the Interior Department to protect plants on solid ground, there is no good reason why the various levels of the bureaucracy cannot forge ahead on a more timely basis to follow up research with actions to protect our valuable botanical resources.

Indeed, the plight of endangered plants is more urgent than ever, as pointed out by the recent Bicentennial Symposium on Endangered and Threatened Species of Plants in the Americas. Botanists are concerned because the Smithsonian list has been public knowledge since January 1975 and has been used by plant collectors as a "shopping list." With no official federal protection for the species of plants listed, destruction of plant habitats has continued at an alarming rate, and some people have destroyed plants on the Smithsonian list due to fears (sometimes without basis) that listing of the plants would mean prohibitions on certain developments. The effects of collecting plants by individuals are overshadowed by a much greater threat to the very survival of some species—wholesale commercial dealing in plants, particularly cacti. (See the article by Dr. Lyman Benson in the attached booklet of reprints.) Field-grown cacti, including endangered and threatened species are being dug up by the thousands for the enjoyment of people who are supposedly plant-lovers. Some species reportedly are being poached even from National Park System land. Endangered and threatened species of plants can still be found for sale in plant stores and supermarkets. In December 1974, the Smithsonian listed seventy-seven plants as being particularly threatened by commercial exploitation. Approximately half of these are found on the FWS-proposed list of endangered plants and many others are on a revised Smithsonian list of threatened plants. In addition to timely listing of the endangered plants, NPCA believe that FWS should give special attention to proposing and listing of threatened plants that are commercially exploited, thus providing prohibitions on interstate and foreign commerce in listed plants for commercial purposes, and on importation, exportation, and related activities.

Approximately half of the 1,779 taxa on the proposed list of endangered species of plants occur in Hawaii, and the special problems of Hawaiian flora are not well understood by the public nor even by some officials in Hawaii. Most native Hawaiian flora is endemic (peculiar to this area and found nowhere else); thus much of the islands' flora is particularly vulnerable to development and to destruction by nonnative feral animals against which the plants are defenseless.

Many people also are confused by the taxonomic questions related to Hawaiian flora. It should be noted that the revised Smithsonian list of endangered and threatened plants is the result of years of study by some of the foremost authorities on Hawaiian flora. "Help Save Our Endangered Plants", The NPCA booklet of reprints of articles from our Magazine, contains an article on Hawaiian flora by Dr. F. Raymond Fosberg, curator of botany at the Smithsonian Institution's National Museum of Natural History. Dr. Fosberg has worked for two decades compiling data on endangered species of plants of the Pacific Basin. "The Deflowering of Hawaii" is a shocking article, as the title implies. The rapid development described in the article still continues. In addition some officials in the state want to convert much of Hawaiian vegetation into commercial forests of nonnative species. The botanical resources of the state of Hawaii are a unique international resource, and some hard choices are ahead if they are to be saved. NPCA urges increased efforts to educate the public about the special nature and value of the flora of Hawaii.

The recent Bicentennial Symposium on Endangered and Threatened Species of Plants underscored the need for federal action concerning our national plant resources. For the most part, state laws on endangered plants—where they exist—are unworkable. For instance, there have been no arrests or convictions in the northeastern states for offenses concerning endangered species of plants. (This is most likely the situation in other areas as well and points out the need for federal personnel in the field to enforce the Endangered Species Act, particularly in terms of commercially exploited plants.) New York adopted a law in 1974, but the law requires that a person knowingly commit an offense, and not many people would be familiar with the 225 species listed or admit their familiarity if caught violating the law.

Although many citizens across the nation are concerned about endangered and threatened species of plants, protection of plants on the state level is often thwarted by a lack of appreciation for the seriousness of the problem or by considering plant protection secondary to other concerns. In some states agencies that are not conservation-oriented are charged with protecting plants, and in other states no agency is in charge of protecting plants. At one point Montana designated the state weed control supervisor as its liaison for endangered plants in addition to the supervisor's other duties. Many states do not recognize the need for botanical expertise or in the case of states such as Wyoming, state officials have no desire to have any plants designated as endangered or threatened or to acknowledge the presence of endangered or threatened species. Other states are much concerned about the problems of endangered plants. California has an active, ongoing program for the determination, mapping management, and protection of its endangered and threatened species of plants. The state wants to invest in protecting plants and their habitats but has been hampered by the lack of official federal action. The significant variance in the degree of involvement in plant protection from state to state, the variance in composition of state lists, and the need to stimulate action on the state level all point to the need for federal protection of endangered and threatened species of plants on a timely basis.

Botanists at the recent symposium emphasized the need in all regions of the United States as well as elsewhere in the Americas, to protect the habitats of endangered and threatened species of plants. (Most of the plants on the recent list have extremely limited ranges and are often confined to specialized habitats such as bogs, marshes, river banks, mountain tops, canyon rims, and similar inaccessible places.)

Under the Endangered Species Act, no lands can be acquired to save endangered or threatened species of plants unless the Interior Secretary submits these species for listing under the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Therefore, in addition to publishing rulemakings in conjunction with the Endangered Species Act, the revised lists of endangered and threatened plants should be submitted to the Convention as soon as possible. The plants now listed on the appendices of the Convention (including U.S. orchids and cacti) should be listed under the Endangered Species Act so that additional protection can be afforded the species.

In its stipulations on land acquisition for endangered and threatened plants as well as in other matters, the Endangered Species Act does not give plants treatment equal to fish and wildlife. Of course, Section 12 of the Act recognized this to a certain degree by requiring that the Smithsonian report provide recommendations to the Congress as to methods of adequately conserving endangered or threatened plant species. The Conference Report on S. 1983 (December 19, 1973), in referring to Section 12 of the Act, states that "it was felt that further efforts

should be undertaken to ensure adequate controls upon interstate commerce in endangered species of plants. . . ."

As previously mentioned, both the recent symposium and the recommendations of the Smithsonian report emphasize the urgent need to provide for preservation of habitat for endangered and threatened plants in their native condition.

The large number of plants threatened with extinction in the United States and the immediate problem of providing critical habitat to help their survival necessitate the amendment of the Endangered Species Act of 1973 to make its protective provisions equally strong for plants as for animals.

There follows a discussion of the specific sections of the Act that need improvement for plant protection:

Section 2(a)(5): This statement of findings should be expanded to confirm that plants should be included in state conservation programs and in cooperative agreements to protect endangered species. Plants are a part of our heritage, too.

Section 3(11): Limits the definition of "species" for plants down to the subspecies level only. This should be amended to include population segments in common spatial arrangement for plants as well as for animals.

Section 4(d): Amend to provide for protective regulations for plants on endangered or threatened list pursuant to the prohibition provisions of Sec. 9.

Section 4f(2)(B)(ii): The regulations for emergency determinations must be amended to cover plants as well as fish and wildlife. Certainly, emergency situations can occur for plants.

Section 5: Under present law land acquisition for plant habitat can be undertaken only for plants listed on Appendices to the Convention. No U.S. plants have been added to the Convention despite a clear need. The Act should be amended to provide land acquisition authority for plants equivalent to that for animals.

Section 6: Clarification should be made in the Act for state-federal cooperative agreements for plants.

Section 8: Encouragement of foreign programs in endangered species is limited to animals but should be amended to include plants as well.

Section 9: There are major differences between acts prohibited for fish and wildlife and those prohibited for plants. Specifically, there is no *taking* prohibition for plants, only a prohibition on interstate commerce or commercial activity in listed plants. This should be altered since much of the decline in plant populations is due to destruction of habitat.

There is a great need for public education on the value of our botanical resources. Conservation of these resources is not just a matter of esthetics. As pointed out by Dr. Thomas Elias of the New York Botanical Garden's Cary Arboretum:

> Man is but one among the million-and-a-half marvelously diverse species of plants and animals in the natural world. It is this diversity of myriad interacting and interdependent species that has provided the stability within which man the species has been able to survive and prosper. But modern man, having prospered to the point of awesome power, has grown so complacent that he hardly notices when another species becomes extinct. . . . Extinctions that inevitably continue through the measured ways of nature need not concern us, but those occurring on a much greater scale through the reckless ways of man will lead to diminished genetic diversity—which means a natural world less prepared to adapt to and thereby survive natural change.

The issue, as emphasized by experts at the symposium such as Dr. George Woodwell of the Marine Biological Laboratory at Woods Hole, Massachusetts, is biotic impoverishment. Dr. Woodwell lucidly stated:

> The endangerment and loss of species is one segment of the more general process of biotic impoverishment that is the heritage of an over-populated and overindustrialized world. The issue is most clear in a consideration of the energy squeeze: most of the energy used in support of man comes through biotic sources, not industrial sources. A brief analysis of the total energy used by man from biotic sources suggests that about 50% of the energy fixed on earth by plants is used now directly as food, the remainder as fiber, fuel or in essential services. Further incursions on the basic resource present a far greater threat than the most gruesome predictions of industrial optimists of the effects of restraining growth in industrialization and energy use. Scientists seem to be taking a passive role in this confrontation as chroniclers of the demise of the biota rather than leaders in finding a way out of the dilemma. Solutions lie in a continuing redefinition of the dimensions of the

basic resource and in an aggressive examination of the design of human ecosystems to assure that new patterns of use of these resources are consistent with preservation.

This is the latent issue of environment. It is time for it to become dominant.

It is imperative that the Office of Endangered Species be provided with enough money and manpower to carry out the responsibilities mandated it under the Endangered Species Act of 1973.

NPCA is pleased that the House and Senate have seen fit to extend and increase the authorizations for the implementation of the Endangered Species Act through 1978. We hope that appropriations will be in keeping with these authorizations and that diligent administration efforts to utilize these funds effectively will follow.

U.S. DEPARTMENT OF THE INTERIOR,
FISH AND WILDLIFE SERVICE,
Washington, D.C., June 19, 1976.

DEAR SENATOR HART: I herewith enclose (on my own initiative) materials on plant conservation, which supplement those that were published in the House Endangered Species Oversight Hearings, Serial No. 94–17, 1976. I hope these will be of use to you with regard to the Hearings your Subcommittee held (with Senator Ford presiding) on 6 May 1976, regarding S.2334, S.3122, & H.R. 8092, ammend and oversee the Endangered Species Act of 1973. I attended that hearing at the request of Mr. Schreiner.

I will be pleased to help you in any possible way to make plant conservation effective.

Sincerely,

BRUCE MACBRYDE, Ph.D.,
Senior Botanist, Office of Endangered Species.

P.S. The enclosed reprint from "Biological Conservation," on the Flora North America program, suggests one way of dealing with a portion of the plant conservation problem. FNA was reactivated 1 July 1975 for a feasibility study with $50,000 from the National Park Service to the New York Botantical Garden. A new FNA Program Council has just recently been formed as well.

Enclosure.

INFORMATION ON PLANTS IN THE ENDANGERED SPECIES PROGRAM

1. Notice on Critical Habitat Areas. Federal Register 40(78): 17764–17765 (April 22, 1975). The concept of "Critical Habitat" from Section 7 of the Endangered Species Act of 1973 introduced and explained.

2. Notice of Review of four eastern U.S. plants. Federal Register 40(77): 17612 (April 21, 1975).

3. Notice of Review of Status of over 3000 Vascular Plants and Determination of Critical Habitat. Federal Register 40(127), V): 27823–27924 (July 1, 1975). The 3,187 candidate U.S. taxa of the Smithsonian Institution report; alphabetized by taxon within State. (List by family then State available separately).

4. Proposed Endangered Status for 216 Species appearing on Convention on International Trade. Federal Register 40(188): 44329–44333 (Sept. 26, 1975); 40(205): 49347–49348 (Oct. 22); 40(236): 57221 (Dec. 9). Includes the 74 foreign plant taxa of Appendix I, Convention on International Trade in Endangered Species of Wild Fauna and Flora.

5. Proposed Prohibitions on Certain Uses of Endangered or Threatened Plants, Permits for exceptions to such Prohibitions, and Related Items. Federal Register 41(110): 22915–22922 (June 7, 1976). The proposal on regulations to implement the Act for plants.

6. Convention on International Trade in Endangered Species of Wildlife Fauna and Flora: Proposed Implementation. Federal Register 41(117): 24367–24378 (June 16, 1976). Proposal on interim regulations to implement the Convention on International Trade in Endangered species of Wild Fauna and Flora; contains lists of all animals and plants on the Appendices.

7. Proposed Endangered Status for some 1700 U.S. Vascular Plant Taxa. Federal Register 41(117), IV): 24523–24572 (June 16, 1976). Includes the endangered candidates of the revised Smithsonian Institution review; additionally, provides Canadian, Mexican and other foreign ranges, and common name (alphabetized by family).

[From the Environmental Journal, November 1972]

Our Native Plants—a Look to the Future

[By F. R. Fosberg [1]]

Endangered species has suddenly become a familiar term. It is also an ominous term. What species are endangered? Why are they endangered? What are the dangers? Why the sudden looming of a concept previously unfamiliar? What is the significance of endangered species in human terms?

Some people ask, "Why worry about any species except man and a few dozen of his domestic animals and plants?" Relatively few people could name more than a few score species even by common name, let alone say why endangered species make any difference, or why one should worry about them. At least this was so until very recently. The sudden general awakening to the seriousness of human pollution and population problems has frightened many people, and some are beginning to listen to what the science of ecology has been trying to tell them for many years. The idea of the oneness of nature, of the wholeness of the ecosystem of which we are a part, is beginning to accumulate believers. It is dawning on people that if one part of an ecosystem is in trouble, the system as a whole possibly may be in trouble. People are grasping this idea and are developing a deep concern about their relation with the rest of the natural world.

Before the coming of man America was endowed with an environmental diversity and biological richness difficult for even a biologist to fully grasp and appreciate. Physiographic and geologic patterns, with resulting diversity of local climate and soil types, provided a setting for the development, by evolution and migration, of an incredible assortment of faunas and floras. These, each with its own physical environment, formed a wonderful array of local *ecosystems*, no two of which were quite identical.

An ecosystem is an intricate assemblage of physical environmental components—rocks, soil, air, water, sunlight—in various configurations, occupying a portion of the earth's surface with its plants and animals. These components are associated in a state of dynamic equilibrium that constantly changes, but usually so slowly as to give an impression of stability and changelessness. Another way of defining the same concept is to say that an ecosystem is a community of organisms plus its physical environment.

The nature of an ecosystem perhaps may be expressed best by mentioning some of the processes that take place among its plants and animals, which are essential to its continued existence. These, reduced to their simplest terms, must include the inflow of energy, virtually all from the sun, the movement of energy through the system, and its eventual escape; the various changes in physical and chemical states of the matter involved—the metabolic process in plants and animals—and the flow of the matter through the system; and the activities, life histories, and interactions of the many organisms that are essential parts of it. Most important are the roles played by these organisms. Essentially, each species and each individual is engaged in utilizing a share of the total resources supplied by the system and is in competition with the others for this share. The development of the system (ecological succession) is a process of continual addition, by immigration or evolution, of organisms that can make fuller and fuller use of these resources with a greater and greater degree of recycling. At the same time there is a disappearance of some species not adapted to the new conditions that develop. The most mature, or climax, ecosystem is that exhibiting the most complete utilization of the total potential resources of the system. It is also the most stable.

Ecosystems are unique among classes of natural systems, terrestrial ones, at least, in that they are able to increase their total potential energy and thus prolong their existence and survive disturbances of various sorts.

During the "life history" of an ecosystem, the period during which it develops and changes from a bare, raw piece of new physical environment with no biota to speak of—be it a lava flow, a newly exposed sand or gravel bar, an area of mobile dunes, or an area of open water—to a rich climax system, a great assortment of habitats exist for varying periods of time. These, along with the great spatial

[1] A distinguished and widely published botanist and ecologist, Dr. F. Raymond Fosberg is curator of botany at the Smithsonian Institution's National Museum of Natural History. He has been chairman of the Pacific Science Association's Standing Committee on Botany and is actively working with that organization to compile a list of rare and endangered species of plants in the Pacific basin. He has served several terms as vice president of the Nature Conservancy.

diversity of habitats due to physical diversity, provide homes for an enormous assortment of kinds of plants and animals. In North America alone the plant species number in the tens of thousands, depending on which botanist is asked.

Even before man came on the scene, some of these species were rare, others common, still others abundant. Each species has a different combination of ecological requirements and tolerances. These differences affect the abundance of the species by restricting them to certain habitats, by influencing their success in competition for resources, by determining their susceptibility to diseases or to occasional or rare extreme conditions, and by controlling their responses to successional changes in communities and ecosystems. Thus there are naturally rare plants and even naturally endangered species of plants.

As frequently has been pointed out, extinction is a natural phenomenon. Great numbers of species have become extinct in the several billions of years before man's appearance. Then why, it is sometimes asked, are we so disturbed about the species that have become extinct in the past few hundred years and those that seem about to join their ranks? Is it not a natural process? One must reply, so is soil erosion. Yet Americans became upset enough about soil erosion to set up a federal Soil Conservation Service.

The answer in the cases of both erosion and extinction is that the natural manifestations of these phenomena are slow enough that new soil is formed and new species evolve fast enough to replace the losses. When the processes are influenced by man, they are so speeded up that the net result is a serious loss of both resources and diversity in our world ecosystem.

So much for the background of the problem of endangered species of plants. What is the situation in the United States? What is being done about it? And what more must we do about it?

Beginning with the arrival of the first human immigrants from Asia, somewhere between twelve thousand and thirty thousand years ago, man has been engaged in modifying the North American landscape and the ecosystems comprising it. Primitive hunting and gathering man exerted some pressure on the natural scene, especially on the larger animals and on plants producing edible parts. However, as far as we know this pressure did not have a particularly marked effect, at least on plants—not much greater, probably, than that exerted by any other large, omnivorous species of animal.

When aboriginal agriculture developed, the landscape was more notably modified; and species of plants living in habitats favorable to agriculture likely suffered important reductions in abundance. Extensive use of fire by some cultures may have put the future of some species in jeopardy. In the southwestern United States and parts of tropical America, where sedentary cultures grew up, and especially where human populations reached high figures, serious alterations in landscapes took place. Some species may well have vanished if they were ecologically restricted to the habitats man needed for agriculture or for building cities.

However, it was only with the arrival of European man that change on a catastrophic scale began to spread across the American continent. The forest was attacked as though it were an enemy. The prairie was put to the plow at an ever accelerating rate. Certain of the natural habitats were eliminated, and the organisms inhabiting them were wiped out. Almost all habitats were drastically reduced or modified. With this reduction and change almost all plants except some pioneers were left with little or unsuitable living space.

One of the characteristics of a pioneer, actively growing human culture seems to be an inability or a disinclination to consider any environmental consequences of its activities. Only things that yield an immediate, tangible benefit are regarded as important, with certain exceptions. Trees, for example, were greatly valued on the high plains by the same people who had destroyed them ruthlessly farther east. On the plains they provide shade and protection from wind, as well as a relief from the flatness and monotony of the landscape. Edible animals (game) were always valued and given some protection, at least after they began to get scarce. Predators, on the other hand, were destroyed, because their role in controlling the species was not easy to see.

From the time a few small groups of Europeans formed scattered settlements along the eastern seaboard until now, the natural landscape of America has been subjected to unceasing attack and constant, drastic alteration. No moderation has been evident outside of specially reserved areas like national parks, and the rate of change has increased exponentially. Many habitats have been wiped out or modified, sometimes beyond recognition. Completely unchanged or "virgin" habitats are almost nonexistent today in the United States and rare anywhere else.

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Vast areas of cultivation, where even the common weedy plants are absent because of use of herbicides; other large areas of highly disturbed land with nothing but weedy species; areas of planted forest, floristically impoverished and monotonous; and vast areas of second-, third-, and fourth-growth forest, from which many of the most sensitive species have disappeared, characterize our country. Climax forest is becoming a rarity. The special, extreme habitats—bogs, swamps, vernal pools, and other wetlands; mineralized areas; and even deserts—where highly adapted and specialized plants grow are disappearing with distressing rapidity. Too many people regard the "reclaiming" of such areas as a great civic virtue.

The results of these sweeping changes are that, although a few species of plants have been given an enormous ecological opportunity and have become common, the great majority of species find their habitats disappearing, and they have no place to live.

The number of rare species of plants is increasing rapidly. While a few of the formerly rare ones have become common, many more have disappeared completely. Rarity is relative, of course. Almost all species except those with pioneer tendencies are rare compared with their abundance a hundred or so years ago. Some may have passed the point of no return. Others have had their numbers so reduced as to severely restrict their genetic variability. This may mean danger in the future when there are alterations in habitat.

Perhaps the person in the best position to realize this change in relative abundance of plant species and the increasing rarity of many of them is the teacher of field botany. He has over the years located good places to which he can take his students to see certain of the more interesting wild plants. When he finds his favorite forest razed and a field of boxlike houses sprouting in its place, when he has to search for a pink ladyslipper in an area where there were hundreds several years ago, and when he finds the marsh where he was able to point out dozens of kinds of aquatic and semiaquatic plants converted to a sanitary landfill, he knows something is wrong. When he has to drive fifty miles to find plants formerly common at the edges of town, he knows the situation is serious. It may be hoped that he can transmit his concern to his students so their greater numbers may increase the pressures for doing something about it.

The recent upsurge of interest in ecology and the concern for the creatures who share the world with us have been strong enough to cause Congress to pass laws and international organizations to formulate treaties and conventions to protect species regarded by specialists as endangered. That this movement is only in its rudimentary stages is indicated by the fact that, nationally and internationally at least, only birds, mammals, and a few large reptiles are afforded protection. A few plants are given local protection, but usually they are not the ones that need it most. The flowering dogwood, for example, is protected in Virginia, although it is one of the plants least endangered there. Such protection is a beginning, however.

The important question is where do we go from here? At the present rate of conversion of habitats to nonhabitats the problem will disappear all too soon. The rare plants will all go, and a monotonous flora of weeds and extremely hardy and tolerant species will replace them. The study of most species of plants will have become a part of a vastly expanded science of paleobotany. The plant fossils studied then will be the herbarium specimens we are preserving today.

To avoid this dismal eventuality several measures seem essential. It should be clearly understood that no plant or animal is likely to survive long unless sufficient suitable habitat is preserved to support a substantial specific population. If at all possible a number of such protected areas in different locations, each with its population of the species of plant to be protected, should be established. This means protecting a great diversity of habitats. Of course, the same area might well be the habitat of many rare species.

Inasmuch as all the rare and endangered species of plants and their habitats are not known, at the same time that efforts are directed toward protecting the known ones a program of determining the present location and status of natural populations of all but the commonest native plant species should be initiated.

A list of all rare or endangered species of plants should be compiled, with sufficient information to guide efforts to protect them. The status of possibly extinct species should be determined. Such an effort is already being made in California by a committee of the California Native Plant Society, for Hawaii by a committee of the Pacific Science Association, and for Texas by the University of Texas at Austin. No list exists, however, for the United States as a whole.

That these matters are becoming more and more of concern to the American public is evidenced by the increasing number of requests for lists of endangered plant species and information on the reasons for the problem and what can be done about it. That many of those making such requests are young people obviously worried about the quality of the environment they must live in is perhaps the most encouraging trend that I have observed. It is a pity there is so little available information on which to base positive action. This is a measure of our slowness in getting people who know the plants to work on problems of this sort. However, laymen who write national scientific institutions and the botany departments of colleges and universities urging activity on the matter may prove to have furnished the drive to get some of the information down on paper and published. Actually, what seems to be required is a strong, active, and determined person or organization to act as a leader and catalyst. The knowledge, or some of it, at least, exists; but it must be tapped and used as soon as possible.

[From Organic Gardening and Farming, February 1976]

How Gardeners Can Help Save Endangered Plants

PLANTS IN YOUR AREA MAY BECOME EXTINCT WITH SCARCELY ANYONE EVEN KNOWING ABOUT THEIR FATE, UNLESS YOU JOIN FORCES WITH THE PROFESSIONAL BOTANISTS WHO CARE

(By Jerome Goldstein)

While many persons are aware of endangered animals, relatively few know about endangered plants. Yet a year-long study of flowering plants, pines and ferns done by the Smithsonian Institution has revealed that ten percent of the flora in the U.S. are included on the proposed "critical lists." 761 species are endangered (in danger of extinction throughout much of their range); 1,238 are threatened (likely to soon become endangered); and 77 have been commercially exploited.

Botanists Bruce MacBryde and Gail Baker work for the Fish and Wildlife Service's Office of Endangered Species. These young scientists believe organic gardeners can help to make the plant conservation effort more effective since "so many of them are sensitive to plants."

"The major problem with preserving plants," says Dr. MacBryde, "is simply plain ignorance. If the public really knew the facts about these plants, we'd do what was necessary to save them."

To begin with, you need to know what plants are endangered or threatened in your region, what regional groups are working to protect them, and what you can do to help.

The best places to get the answers include the Department of Botany at your state university, an arboretum or botanical garden near you. Regional societies are especially active, such as the New England Wildflower Society in Framingham, Mass., the California Native Plant Society at the University of California, Davis, and the Georgia Conservatory, Inc., in Atlanta.

The plant listings were compiled by the Smithsonian staff after Congress passed the Endangered Species Act. The roster includes members of the aster, forget-me-not, cactus, sedum, heath, spurge, lily, mallow, orchid, buckwheat, rose saxifrage and snapdragon families. Places in which they are usually found are in narrow niches, such as mountain tops, ravines, bogs, river banks and rock cliffs.

To save the plants actually means to save the habitats in which those plants grow. This requires that many persons in the U.S. serve as a "plant lobby" to pressure local, state and national governments. Minimum land preservation measures are needed, since two-thirds of the endangered species can be found on federal lands. According to the Nature Conservancy, the plants could receive adequate protection by setting up only 50 to 100 new preserves. Notes Robert E. Jenkins: "Among the many important environmental tasks facing us, the preservation of endangered plant species is one of the most accomplishable, Let's just do it."

Dr. John R. Bozeman of Georgia Southern College has high praise for the many residents who worked with the Georgia Conservancy in getting the state legislature to acquire some key areas for preservation like the Phillips Tract. "There's a real need to preserve local natural areas, one and two-acre habitats which have unique elements," Dr. Bozeman explains, "and gardeners can appreciate where these are and why we need to protect what's growing in them. If you can't develop local interest, there's no chance to get state or federal support."

Besides the critical open spaces involved, there's another big benefit to saving endangered plants—economics. Taxonomists at the Agricultural Research Service in Beltsville, Md., who have studied the list are convinced that many plants have significant potential in medical research.

The Smithsonian report contains a number of reasons why gardeners and farmers benefit by preserving those plants: they possess potential for food crops and horticultural use, are bio-indicators of minerals and metal ores, and sources of medicines; they help to provide diversity and greater ecological stability, as well as beauty. Particularly critical is that loss of any species of plant "represents an irretrievable loss of unique genetic material or germ plasm that cannot be duplicated and narrows man's future options for his own use of the environment."

While such aid can be given endangered plants by pressing for habitat protection and better state laws like a model one suggested by the Fish and Wildlife Service, gardeners can use their knowledge in some very specific ways. A few states do have agencies dealing with native plants, but many have ingored the subject. Botanists MacBryde and Baker hope people, like OGF readers, who are close to plants become "watchers in their areas." Such groups could serve as monitors, since they know the plants that have been there and "have good, initimate knowledge of when they're disappearing."

At the same time, the two botanists urge home gardeners never to move an endangered plant into their home garden. That's a worry shared by most professionals who work with endangered species. One economic botanist at the U.S. Department of Agriculture says that each time a species is described as endangered, its price in the marketplace goes up.

"I recommend that gardeners question the sellers of 'rare' plants about where they come from," advises MacBryde. "There are many places that rare plants can be obtained safely, especially if they are grown from seed. But when you see a huge cactus for sale, it would be well to ask the owner where it came from."

The main point to remember is that if plants and habitats are to be saved, the public has to care—and organic gardeners can help make sure that knowledge is put to constructive use.

[From National Wildlife]

Please Don't Pick the Butterworts

PLANT COLLECTORS HAVE HELPED WIPE OUT MORE THAN A TENTH OF THE NATION'S WILD FLORA

(By Mariana Gosnell)

For the likes of a canary bird rose, a giant New Zealand buttercup or a single specimen of the pocket handkerchief tree, men have suffered plague, snow blindness, and malaria; lived on horseflesh and ground rats; endured poisonings, stonings, the attacks of mad buffalo and profound loneliness. Over the centuries, fanatic plant hunters have risked their lives and fortunes to seek our new varieties in remote corners of the world. From places like the Min-shan Gorges of central China and the jungles of Borneo, they have brought home hundreds upon thousands of plants never before seen in the West.

Some of the hunters became famous for the flowers they introduced, and many of their hard-won discoveries—like wisteria, azaleas, forsythia, poppies—are favorites in gardens today. But with more people and more gardens, and fewer natural corners of the earth to forage in, plant collecting has in recent years become a highly suspect activity.

Nearly a tenth of the world's flowering plants are so scarce now as to be considered in danger of extinction. In the U.S., according to a report issued by the Smithsonian Institution last year, over 3,000 of 22,000 native plant species are endangered, threatened or extinct in the wild. Most are dying out because their habitats are being destroyed—by housing developments, strip-mining, lumbering, irrigation, road-building and farming. But collectors, private and commercial, also take their toll, and often they put pressure on the very species that are in the greatest danger.

Commercial dealers are the main culprits. The Smithsonian lists 77 rare species, including the giant fawn lily and Nevada primrose, as "commercially exploited." Some nurserymen get their plants from locals who want to pick up extra cash, like mountaineers in North Carolina who root up showy lady's slippers from the woods for 50 cents apiece, and California housewives who peddle cacti to wholesalers out of the back of their station wagons. But business is often bigger,

and collections more ambitious. Acres of desert cacti are strip-collected at once and tossed into trucks for sale to landscapers and developers. Nurseries in New England offer terrestrial orchids in wholesale lots by the dozen or hundred to orchid-fanciers in Europe.

Sometimes the nursery owner himself does the foraging. In order to corner the market, one dealer is said to have cleaned out the entire—and last—colony of a rare cactus in Baja California that had beautiful golden-yellow flowers and matching spines.

There are, of course, responsible dealers, who collect in moderate numbers, or take only cuttings and seed. "If it weren't for people like me," says Gilbert Tegelberg, Jr., the highly respected owner of a California nursery, who has grown and distributed many rare and delicate desert plants, "some of these things would be extinct." But other dealers are less than scrupulous. One recently dug up more than 700,000 rattlesnake orchids in Tennessee to feature in the mail-order terrariums he was selling.

According to Carlyle A. Luer, chairman of the Marie Selby Botanical Gardens in Sarasota, Fla., and a noted orchid expert, 99 percent of American terrestrial orchids sold by commercial firms die within two years. "Some of these," Luer says, "you can't transplant from one *woods* to another. They need particular fungi, weather, soil. They're too sensitive." Luer proposes that the sale of native orchids be totally outlawed.

Lyman Benson, cactus expert and professor emeritus at Pomona College in California, describes the inevitable plunder that follows the discovery of a new breed of plant. "Several new, very small species of cacti I have described in scientific publications—with considerable caution—appeared almost instantaneously in commercial catalogs in various parts of the world," he says, "selling at $25 to $50 a plant." Dr. Donald E. Schnell, editor of a journal on carnivorous plants, describes a not atypical scene he recently witnessed in the Green Swamp of North Carolina: "I noticed a row of four men with burlap bags crisscrossing a savannah in the manner of a squad of cotton harvesters of a century ago, going row by row and literally plucking Venus flytraps and butterworts like so many fruits of labor. Around the corner, another partner was actually pitchforking spagnum [a moss] into the rear of a full-size dump truck." One firm in North Carolina, which has a state permit to collect the threatened Venus flytrap for scientific purposes only, sells the carnivorous plants to anyone with $2.50 in his pocket.

And in California, farmers still remember the depredations of a Depression-era dealer whose multiple 10-men digging teams fanned out over the countryside and denuded it of literally billions of lilies—the bulbs of which were given out as premiums by cereal companies and gas stations. "When I was a youngster going to my uncle's ranch in Placerville," says Wayne Roderick, museum scientist at the University of California Botanical Gardens in Berkeley, "I remember seeing the Humboldt lily with its bright orange flower by the hundreds along the road. Now, if you see one, you go out and celebrate."

Private collectors, though working on a smaller scale, can make an impact as well. Tourists bused into the Everglades on orchid-picking tours and picnickers scavenging cacti from the desert outside Phoenix can cause "a surprisingly large decimation," says one horticulturist. "There is," writes British author Anthony Huxley, "no difference in principle between a few peasants digging up 50,000 tubers [for a garden firm] and 50,000 tourists digging up one, each thinking: 'One small plant will not be missed.' "

Some plant pickers are innocent—kids out on a hike. Some are ignorant—those who pick a section of trailing arbutus for its pretty pink flower, for example, rarely realize that they are killing the entire plant. Others are what C. Ritchie Bell, director of the North Carolina Botanical Garden in Chapel Hill, calls "itinerant." "They take plants for the novelty value," he says. "It's the throw-away-economy concept."

There are many plant-pickers, however, who know only too well what they are getting. One woman appeared at a national convention of cactus enthusiasts a few years ago wearing a handful of coin-size *Pediocactus peeblesianus* var. *peeblesianus*—so rare they grow in an area only five miles long—sewn around the brim of her Mexican sombrero. "Like collectors of stamps, rare books or buttons," says Fred Boutin, botanist at the Huntington Gardens in Los Angeles, "once some of these plant people want something, there's almost nothing stopping them."

So fierce is the determination of some hunters that the sites of obscure plants are guarded by their discoverers almost like state secrets. In England, maps marking the locales of endangered species are kept in a locked safe. "I have certain

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outcroppings I don't show to anybody," says William J. Ellis, retired chemical engineer and an amateur botanist in Raleigh, N.C. "Not even the botanists at the state college. They're gatherers, too." Stanley Smith, curator of botany at the New York State Museum in Albany, recalls once telling a fellow conservationist not to collect two things he'd found nearby, as they were quite scarce: a ram's-head lady's slipper and a leathery grape-fern. "I found out later," says Smith, "that he went out the same day and got both. The ram's-head was dead in a week. I get the impression," he sighs, "that people are in favor of conservation for everybody else."

Even public parks are not exempt from predators. Nelson Chadwick, ranger-naturalist at the William B. Umstead State Park in Raleigh, N.C., says he can no longer publicize the presence of beautiful rarities in his park, which over the last two years has lost all of its yellow-fringed orchids to trowels and shovels. "It's a shame we have to do it that way," he says. "A few people can sure spoil it for a lot."

Smithsonian officials are worried that the mere publication of its "candidate" endangered list will in itself hasten the demise of some plants. "Well-meaning but misguided persons," the report reads, may "dig up the last specimens to 'grow' them in their own gradens—usually with fatal results."

"Fatal results" because even professional botanists have difficulty transplanting material from the wild. "Very few of our wild flowers can be propagated," says Helen M. McCadden, president of the Federated Garden Clubs of New York State. "They need a certain amount of moisture, the protection of other overhanging plants, the right insects. If you take them from the wild, it's like taking injured animals and trying to save them." It's a long shot.

Most states have no laws protecting specific plants from what one observer calls "this destructive blossom lust." Some states do—for practical reasons. South Carolina outlaws the taking of the sea oat, popular for dry arrangements, because it stabilizes the sand dunes. Other states do—for sentimental reasons. Colorado limits the picking of its state flower, the white and lavender columbine, to 25 a day. But only a few states have drawn up careful, comprehensive lists of plants in trouble and then designed laws to protect them. New York's list covers "attractive nuisances"—"The ones that flash in people's eyes," says Ellis, "end up in their hands"—and "commercially vulnerable" plants, like ferns for florists' bouqets and ground pine for Christmas wreaths. Some plants on the list are not uncommon but could be if not watched. Stanley Smith credits the state's law with discouraging some foresters who consider flowering dogwood a weed tree from cutting it wholesale out of the woods.

The gold and pink twinflower, which has distinctive paired funnels and a delicious scent will be protected in the future under a regional list in New York—in the Catskills where it is rare, not in the Adirondacks where it is not. State and local—not just national—lists are important, says Robert W. Read, botanist at the Smithsonian: "Just because a deer is in a zoo in China doesn't mean I'll get to see it. It might be extinct in my area." Also, he points out, "What if there's a hurricane? It's better to keep plants in scattered areas; they'll have a better chance of surviving." Smith, too, argues for the preservation of locally imperiled species even if they flourish elsewhere. Plants growing on the margin of their range, he explains, are often "pioneers, moving into new territory, and therefore may have something the main population doesn't have, like an ability to tolerate cold or salt."

Fines for plant-poaching in most states run from $10 to $100, with an occasional possible jail sentence, but enforcement when it occurs is usually limited to "a smile and a rap on the knuckles." says one official. Few wardens and policemen are taxonomists, and few judges are impressed by the crime. Also, it's easier to stick an oconee bell in a side pocket, muddy roots and all, than it is to detect it there. Therefore, state laws are usually more educational than punitive, meant to let people know, says McCadden, that "plants are important too."

One state that does take its enforcement very seriously is Arizona, where landscaping with giant desert plants—saguaros and barrel cacti and ocotillos—is a thriving industry. Richard Countryman is assistant director of the state's commission of agriculture and horticulture and head of its "cactus cops." "In just 40 minutes," he says, "you can pick up $400 to $500 worth of cactus. A nice-size barrel cactus gets you $12.50 to $17.50; a saguaro $10 a foot. It's as profitable as cattle rustling used to be."

It is also almost as illegal. Arizona, which has many unique desert plants, some centuries old and weighing tons, allows digging of certain native plants for sale. But a harvester must have written permission from the commission as well as

from the owner of the land he's clearing. Those who dig without papers or from a stranger's property can be fined $100 to $300 or jailed for nine days or both, for each separate plant in the cache. Each year, about 30 offenders are convicted, most of them already possessing criminal records. "They're feeding their habit," says Countryman, "whatever it is—alcohol, dope, making bond." While on cactus duty, Countryman's life has been threatened repeatedly, and he always carries a shotgun on the seat beside him in his unmarked pickup truck.

Proving a plant heist isn't easy. "Cacti don't have serial numbers," says Countryman. There are not likely to be any witnesses to a cactus ripoff in the millions of acres of unfenced desert. Sometimes, though, the thieves reveal themselves. One man was stopped by a border patrol recently on a routine check and asked for his driver's license. After fumbling in his pocket, the man came up with a two-inch saguaro thorn stuck in his finger. The alert patrolman hurried to the back of the truck, pulled up the tarp, and found 33 stolen saguaros.

The sacking of the desert goes on elsewhere in the South as well. Del Weniger, professor of botany at Our Lady of the Lake College in San Antonio, Tex., mourns a tiny casualty of the drug craze. "Five or six years ago," he wrote, "I knew thousands of acres in the lower Rio Grande Valley where peyote grew in profusion under almost every shrub, but visits to one after another of these locations now show them barren of even a surviving specimen after the crew of gatherers have been through." They don't even leave enough, says Marshall C. Johnston, director of the Rare Plant Study Center in Austin, Tex., to make a new generation.

Cactus clubs also contribute to the pillage (Huxley deplores the "locust like depredations of a party"), as do souvenir hunters, cactus-candy makers, black market gardeners, and even dope peddlers, who've been known to transport and store drugs in hollowed-out barrel cacti. According to Benson, 26 percent of all American cacti are endangered. Many of them are so rare, says Edward S. Ayensu, chairman of the department of botany at the Smithsonian Institution, "they could be made extinct in minutes."

Why do people collect wild plants, rare or otherwise?

For one thing, many plants are slow growers, an important deterrent to commercial firms. A saguaro, for instance, doesn't start the distinctive branching that makes it a symbol of the western desert until it is about 70 years old. Also, some plants are impossible to grow from seed or are simply tedious to cultivate.

But for many collectors, the reward is the thrill of the hunt. Ed Gay, a special-effects man in Hollywood and a highly regarded "collector's collector" who leaves precarious plants alone, describes the excitement he felt when he discovered a new species of cactus in Mexico. "The cactus heads were so small," he says, "that it would take four to fill a thimble. To get at them, we had to scratch away pebbles of sharp volcanic tuff. We were so intent and determined that we didn't notice for an hour our fingers were dripping blood." Gay and his wife Betty, a CPA, made ten fruitless 800-mile round trips to northern Arizona to look for a cactus "the size of the last joint of a lady's thumb." On their eleventh try, they found a single specimen, "The sheer defiance of the plant," Gay says, "had a magnetic appeal. Collectors just don't like to admit defeat."

"It's the chase, the hunt," says Mrs. Margaret Reid, who braves snakes and poison ivy to gather wild flowers for her two acres in Raleigh, N.C. "It's not dainty or even ladylike—you sweat a lot—but when you see two shiny leaves and know it's a yellow lady's slipper and not a Solomon's seal, you're thrilled."

Actually, plant-hunting is not necessarily a bad thing. It can provide both botanical knowledge and stock for the propagation of fragile species. Besides, many collectors get their treasures from land about to be bulldozed. The North Carolina Botanical Garden has a "plant rescue team" of volunteer diggers who move wild flowers from future construction sites to public gardens. William Ellis believes such groups ought to go a step further. "Move the flowers into the wild," he says, "for the next generation to enjoy." The idea is controversial: repopulating nature with threatened plant species can have drawbacks, like the hybridization of resident plants, as well as obvious benefits.

Clearly, though, altruism is not the prime consideration for most plant collectors. It is the having, not the repopulating, that keeps them in the field. "We are," concedes one West Coast plant dealer whose sales have skyrocketed in the last three years, "in a period of plant madness."

If it is indeed madness, what can be done to save vulnerable plants?

For a start as a concerned citizen, you might try:

An appeal to conscience and reason. "The owner of an extremely rare and endangered plant dug from the wild," says the Smithsonian's Ayensu, "should be made to feel the same social disapproval that owners of leopard coats now receive."

An appeal to the pocketbook. Don't patronize florists or nurserymen who continue to take listed species from the field. Try persuasion first: "A fall from grace," says McCadden, "can be worse than a threat."

Self-restraint. "If you cannot resist the temptation to collect," advises Leo J. Pickoff, president of the Cactus and Succulent Society of America, "at least be sensible about it. * * * Think small. There's no reason to get a plant for everyone you know." Also, learn to recognize protected plants in your area. If in doubt about varieties, stick to roadside daisies and Queen Anne's lace. Better still, make the outing a photo safari.

Complaint. At garden shows, bring pressure to disqualify arrangements that include species on prohibited lists. One club in upstate New York even rejected a photo for its group calendar because it featured ferns taken from the wild. Give preference to seed-grown exhibits.

C. Ritchie Bell believes endangered plants can be helped the same way alligators were—by clamping down at the selling stage. Similarly, Ayensu proposes that nurseries selling pressured plants be made to produce certificates that they were grown from seed. Though some operators might try to get around the requirement by sticking collected plants briefly in soil beds at the nursery, there are ways to recognize purloined plants. For example, cacti taken from the field are usually older, with roots broken because they grew in hard ground. Also, a quick root-soil test can show that the suspect plants came from earth outside the nursery. Ellis suggests using a little detectives' logic: one dealer at a "trading post," he says, insisted he had grown all his lady's slippers on his own and. "Why, it would take 10,000 acres," says Ellis, "to get that many. They don't grow that close together." Nor is it reasonable, he says, for a mail-order house that offers a wide choice of wild flowers at bargain prices to have cul ivated them themselves. "The situations the plants require are too varied," Ellis says. "It would be prohibitive in cost to grow them all."

The Smithsonian's rare-plant report, which grew out of the Endangered Species Act of 1973 covering both animals and plants, recommends that those areas of the country where beleagured plants cluster be set aside as natural landmarks, something that is already being done for endangered animals like the Florida kite. Within the preserves, uprooting or even picking plants would be forbidden. As for the Act itself, it has, according to some botanists, a hole in it as big as a redwood ring: the "taking" of listed plants is not prohibited, as the taking of listed animals is, unless interstate commerce is involved. Says Bruce MacBryde, botanist at the U.S. Fish and Wildlife Service: "A farmer can pick an orchid in his backyard and give it to his wife, even if it's the last orchid in the country."

Lovers of rare plants hope to change all that, as well as to stiffen state penalties so that commercial exploitation of wild plants will be more than "a penny-ante rap," as one convicted plant-thief called it. Still, says Boutin, "we can't put a blanket rule on everything. In some cases, it's silly, and in others not even a blanket ruling is stringent enough." Benson concurs: "We must be balanced," he says, "not rabid." For example, the Venus flytrap, which grows in only a few soggy miles of pineland along the Carolina coast, is protected by North Carolina state la v. "If this area loses the flytraps," says Rhodes Robinson, a wildlife biology student at North Carolina State University, "that's it for the whole world. They're gone forever." But since the insecteaters thrive on "disturbed" ground, it's possible that occasional rooting up of some plants may increase the overall supply.

Information is meager, too, about what constitutes the critical size for a colony of wild plants—that is, the minimum number the group needs to ensure that any survive. Robert F. Thorne, curator of the Rancho Santa Ana Botanic Garden in Claremont, Calif., talks about the plight of a small cream-colored plant which looks something like a snapdragon and grows on rocks in a single canyon of Death Valley. "One feral collection," he warns, "could now eliminate it. Even taking one plant would be a danger." But Charles Glass, editor of the Cactus and Succulent Journal, says: "I haven't seen the plant yet where taking seven of a kind will jeopardize its existence." Glass believes that restricting access by "conscientious individuals" to fresh material from the field would be "cutting off our noses. . . . " Ed Robbins, owner of the Gardens of the Blue Ridge in Ashford, N.C., which gets most of its plants from the woods around it, agrees. "The plants come right back," he insists. "We've been collecting here since 1800, and we can't tell the difference."

The plants do not always come right back. "For years," says Read, "I used to walk through a woods loaded with trailing arbutus, and I never took any. Now it's cleared for a subway station, and they're all gone. That's the kind of thing that breaks my heart."

[Reprinted from Biological Conservation, January 1974]

Flora of North America Program Suspended

An integrated inventory of the vascular plants of North America (north of Mexico) is needed as a major aid to basic environmental research and education, and to wise resource management. Through initial action of the Council of the American Society of Plant Taxonomists, and support of the Smithsonian Institution, the American Institute of Biological Sciences, and the US National Science Foundation (NSF), the project conceived in 1965 evolved into a creative, shaping force in phytotaxonomy while still in its planning stage (*cf.* Roy L. Taylor, 'The Flora North America project', *BioScience*, 21, pp. 521–3, 1971). The Flora North America Program (FNA) was only implemented fully in October 1972, when the NSF, Canada Departmcnt of Agriculture, and National Research Council of Canada, provided funds to create seven satellite editorial units across Canada and USA, with headquarters and systems development at the Smithsonian Institution, National Museum of Natural History, Washington, D.C., USA.

FNA defined rigorous standards of precision for recording taxonomic data as it pioneered in adapting the computer to store the characteristeics of this continental flora in a Data Bank which would permit retrieval of information in many new ways. A synoptical Flora of the area would have been published in 1978, and long-range plans for the Data Bank included expansion of the computer files to other geographical areas. Since October 1972, FNA had received indications of participation, as contributors or reviewers, from some 600 botanists throughout the world. Communication from this synthesis of talent had already revealed new interpretations of plants in the area.

However, the financial austerity of Mr. Nixon's new presidential term effectively terminated the Program in late January of 1973, when the US Office of Management and Budget prohibited the Smithsonian Institution from seeking FNA funds in Congress, and thus the NSF was compelled to withdraw also its support (*cf. Science, N.Y.*, 179, p. 778, 1973). FNA formally suspended operations in early February and disbanded its staff, although its Program Council continues to seek alternative financing.

With *Flora SSSR* completed in 1964, *Iconorgaphia Cormophytorum Sinicorum* started in 1972, and *Flora Europaea* half-finished in 1972, North America is the major north-temperate region without a compendium of its flora or even one in prospect. FNA was also incorporated in the USA–USSR agreement on studies of rare and endangered species negotiated in Moscow in January 1973. The fate of FNA emphasizes the feeling with which many of us left the Stockholm conferences of June 1972: awareness of needs for the environment is yet small in a world that is increasingly imperilled.

Help Save Our Endangered Plants

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Help Save Our Endangered Plants

Conservationists concerned about endangered species of plants and animals were elated in 1973. In February an international conference concluded a treaty called the Convention on International Trade in Endangered Species of Wild Fauna and Flora which would control commercial exploitation of endangered plants and animals; and Congress passed the Endangered Species Act of 1973. These events were of special interest to botanists because both of these measures provided for, for the first time ever, protection of endangered species of plants as well as of animals. The Endangered Species Act of 1973 directed the Smithsonian Institution to prepare by December 1974 a list of endangered species of plants and its recommendations for saving them. After this monumental task was completed, however, what seemed at the time to be a brighter outlook for endangered species of plants greatly dimmed.

This booklet of reprints from *National Parks & Conservation Magazine* provides information on protection efforts for endangered plants as well as details about the Smithsonian's findings; about cacti, the most endangered *group* of plants; and about Hawaii, the state with the largest number of endangered plants — by the most highly qualified authorities.

CONTENTS

The threat of extinction for many species of plants grows each day that lists of candidates for federal protection are bogged down in a maze of bureaucratic procedures required before the plants can be listed under the Endangered Species Act of 1973.

At present the man-caused extinction of hundreds of species of plants seems inevitable due to the low priority that the nation so far has given to protecting endangered plants and to the fact that protecting them now is most often a race against time to prevent people from destroying plant habitats, collecting, or otherwise contributing to the demise of species.

As many NPCA members know from previous reports of our ongoing efforts to assure the protection of endangered plants, the 1973 law directed the Smithsonian Institution to prepare a report on endangered plants for Congress. In January 1975 the Smithsonian reported to Congress, listing approximately 10 percent of vascular plants native to the continental United States (including Alaska)—about 2,000 kinds of plants—as "endangered," "threatened," or "recently extinct." In addition, it *conservatively* listed 50 percent of Hawaiian vascular plants (see pages 4–10). The Smithsonian made recommendations on timely protective actions.

Almost six months later, following NPCA protests that the Interior Department was procrastinating on this issue, Interior's Office of Endangered Species (OES) published a notice that it considers the Smithsonian report a petition under the Endangered Species Act, thus formally beginning a review of the lists, with the assistance of recently hired staff.

The new endangered plants program staff consists of *two* botanists who are struggling in earnest with the awesome task of reviewing the status of several thousand species of plants. It is unfortunate that the understaffed OES has allocated or authorized funds for only two botanists to work on this critical area. With the review and status report for each species reportedly taking at least thirty person-days of work, it will take years to list and protect all the endangered plants effectively.

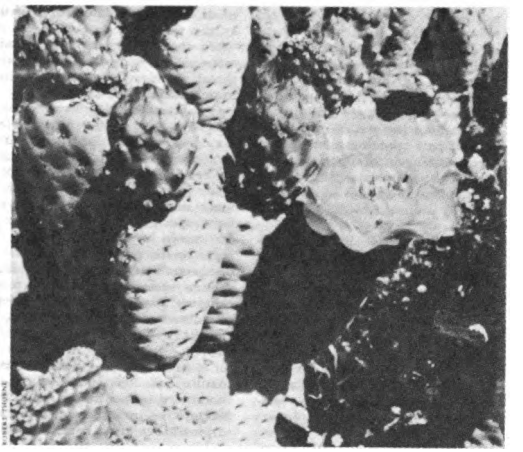
Despite severe staff and funding constraints, some progress is detectable. OES recently published a proposed rulemaking in the *Federal Register* for all the plants (and animals) listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. These are the plants that the Convention signatory nations agreed are endangered and affected by trade. This rulemaking procedure will require a *minimum* ninety-day review period before any species can actually be listed as endangered but will probably take considerably longer with only two botanists in OES to work on them. Preparations are now underway for another proposed rulemaking for species on Appendix II of the Convention (those that *may become* threatened with extinction due to trade).

In addition, OES has begun to work on the list of seventy-seven plants identified in the Smithsonian report as being commercially exploited. This list includes several species of cacti, orchids, and carnivorous plants such as the Venus fly trap.

Severe staff constraints, both in OES and in the Smithsonian's Office of Endangered Flora, coupled with a lack of funds to contract out the preparation of the essential status reports to other botanical experts will surely slow the listing process tremendously—perhaps allowing the extinction of some of the very plants that the process is intended to preserve.

Members who wish to express their concern should write to the Interior Department to urge that a higher priority be placed on the review and subsequent listing of endangered and threatened plants in the United States, along with a larger allocation of funds and more personnel to carry out this task.

Hon. Nathaniel P. Reed
Assistant Secretary for Fish,
Wildlife & Parks
U.S. Department of the Interior
Washington, D.C. 20240



Because of exploitation by collectors, cacti are one of the most seriously endangered groups of plants, with 30 percent of our native species of cacti endangered or threatened. The beautiful Little Beavertail Cactus (Opuntia basalaris brachyclada) *illustrated here bears bright magenta blossoms in spring and is found only in California. A pricklypear cactus, it is listed as threatened.*

At Last—

A BRIGHTER OUTLOOK FOR ENDANGERED PLANTS

Ten percent of our native higher plants have become endangered, threatened, or recently "extinct." Proposed lists of these plants are being presented to Congress with major recommendations for habitat preservation.

by DALE W. JENKINS

IF YOU WERE SHOWN three beautiful flowering plants of a rare species and told that they are the last existing specimens in the world, what would you do?

Would you say, "That's too bad!"; transplant them to your garden to save them; fence the plants to protect them; or help to have the habitat preserved and, if necessary, studied by specialists to determine the best ways to increase their population?

In fact, the last choice is the only effective way to save endangered plants. Merely fencing plants, of course, would not adequately protect them; the entire ecosystem must be preserved. And transplanting rare plants to a garden to "save" them almost certainly dooms them because of the high frequency of unsuccessful transplants. Breaking any roots of some species causes fungal or other infection and ultimately death. Many rare plants are highly specialized in their requirements, which are often unknown. Even when such transplanting is initially successful, the future of the plants is still uncertain in terms of their reproduction. Gardens are not permanent, and plant collections are often lost with the death of the owner. Even in the best botanic

gardens rare species are exposed to related species, with which they often hybridize. Among other problems of botanic gardens is the loss of records over long periods. Therefore, artificial cultivation, like captive breeding of endangered animals, is a last resort, to be considered only when an unavoidable threat endangers the species. Even then the ultimate goal should be to reestablish the species in its original or a similar habitat.

CAUSES OF RARITY. I am often asked, Why are some species of plants rare and others abundant? The answer to this question is that many factors determine rarity or abundance.

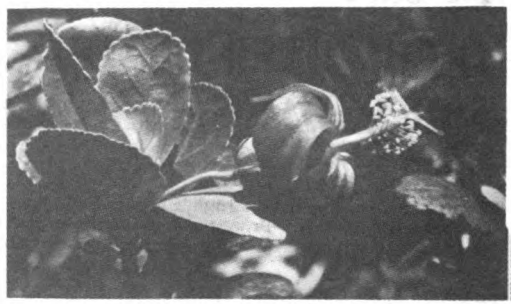
Species of plants have developed, spread, retreated, or changed in distribution in response to long and slow geological and climatic changes during millions of years. Upthrust of mountains, submergence and flooding of land, formation of islands, glaciation, severe droughts, and fire are some of the natural factors affecting plants. During periods of climatic change some species were isolated in small areas, and the remaining small populations inbred and lost genetic variability. They developed narrow specializations that resulted in their rarity and sometimes their extinction.

However, natural factors affecting plants have now been overwhelmed by the effects of human activities. Man has drastically changed the surface of the earth as a result of his enormously increased population and industrialization untempered by an adequate conservation ethic. He has destroyed plant habitats as well as plants and plant parts themselves. Plant habitats are continuously eliminated by strip mining; timber harvesting; flooding; irrigation; overgrazing; stream channelization; drainage of bogs, swamps, and marshes; destructive fires; and prevention of natural fires. Plans for more dams, power plants, and strip mining; shale oil recovery; increased irrigation and agriculture; development of more cities, roads, factories, and dumps; as well as the pollution that will result when these activities are carried out—all these developments threaten to destroy or modify even more natural plant habitats.

Commercial and private collectors have been chiefly responsible for threatening or eliminating certain groups of plants. Commercial collectors take cacti by the truckload, preying especially on the most rare and beautiful species. Some species are so rare that they are known from only a few specimens at the place they were first discovered. A collector could make such a species extinct in a few minutes! One commercial dealer proudly advertises one threatened species as collected from the wild, "a new offering that is very *rare*, for $6 per plant!" One can buy large mature collected plants of other threatened species for as much as $300 each. Similarly, collecting is seriously depleting some tropical orchids in the Everglades and other areas and some insectivorous species of plants such as pitcher plants.

Man indirectly destroys or changes populations of plants as a result of the use of fertilizers, herbicides, and other biocides that pollute air, water, and soil; destruction of such pollinators as insects, birds, and bats; and introduction of plant diseases and insects and other animal pests.

Man has accidentally or purposefully introduced more than 1,800 species of foreign vascular plants into the continental United States and more than 3,000 species in Hawaii, some of which have become naturalized or cultivated. Many of these species are the aggressive weed pests such as thistle, dandelion, and water hyacinth that choke our agricultural crop fields, damage our lawns and pastures, or overgrow our lakes and waterways. Foreign species, when freed of the



As a result of habitat destruction by cattle and goats, a spectacular scarlet hibiscus (Hibiscus kahilii forbes) *is one of nearly nine hundred Hawaiian species listed in Smithsonian's report to Congress as endangered or extinct. Hawaii has the unfortunate distinction of having more endangered species of plants than any other region of the United States, with 50 percent of her native higher plant life appearing on the proposed national lists. In fact, F. Raymond Fosberg and Derral Herbst, authorities on Hawaiian flora, consider as much as 80 percent of Hawaii's 2,200 kinds of higher plants to be rare and threatened. More than 3,000 species of exotic plants have been introduced into Hawaii; lush lowlands have been extensively converted to agricultural land, industry, military bases, housing, and other developed use; and much of her highlands have been converted to pastureland for domestic animals.*

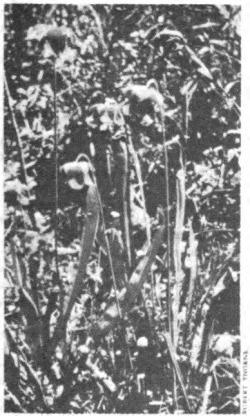
native diseases and pests that held them in balance in their native country, often win out in competition with our native species and contribute to the increased rarity of native plants.

THE ENDANGERED PLANT PROJECT. How many of the native flowering plants in the United States actually are endangered or threatened? How many have become extinct recently? Where are they located? How many are protected in our parks and other areas? How can we help save them?

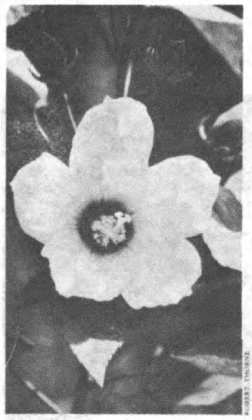
Answering most of these questions would have been impossible a mere six months ago. But now, as a result of the first coordinated national effort to study endangered plants, the answers are becoming known.

The Endangered Species Act of 1973, enacted on December 28, 1973, authorized and directed the Smithsonian Institution to review species of plants that are now or may become endangered or threatened and methods of conserving them, and to report to Congress within a year the results of such a review, including recommendations for new legislation or the amendment of existing legislation. The Smithsonian has completed a year-long study, and the report is being sent to Congress. This report represents the first phase of the study; the proposed lists cover endangered and threatened native vascular plants (that is, flowering plants, pines and their relatives, and ferns). The second phase of the study will be to identify endangered nonvascular plants such as algae, fungi, lichens, mosses, and liverworts and to locate habitats of both vascular and nonvascular plants that should be preserved.

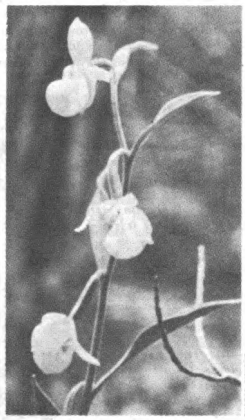
To prepare this report, the Smithsonian's Department of Botany organized the Endangered Plant Project. All the available publications on plant life of regions, states, and localities of the United States were reviewed, and data on species with very limited distribution or rare status were compiled. The latest available scientific monographs and revisions on classifications of plants were reviewed, herbarium collections were checked, and specialists were consulted to determine synonomy and changes in taxonomic status (scientific classification). The resulting national lists were compared with local state lists of rare and endangered plants that about thirty states had prepared separately. The data thus compiled were put into a computer and printed out in lists by endangerment status and by state. These preliminary lists were then presented for comment and recommendations to selected biologists from the scientific community at a workshop convened in August 1974. [National Parks & Conserva-



The Sweet Pitcher Plant (Sarracenia rubra) *grows in bogs in Alabama, Mississippi, Florida, Georgia, South Carolina, and North Carolina. Favored by collectors, it is now threatened.*



The endangered California Rose Mallow (Hibiscus californicus) *has snow white petals and a wine-red center. It grows only in California on moist banks and in freshwater marshes.*

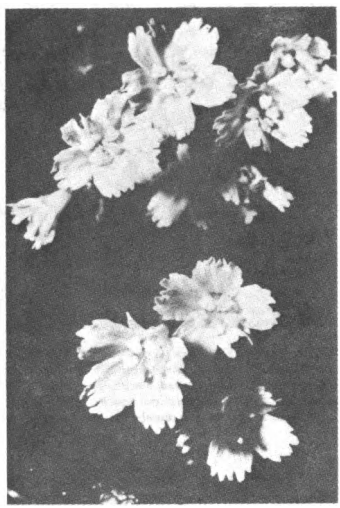


The delicate California Lady's Slipper (Cypripedium californicum), *an orchid, has a white lip and dull yellow sepals. It is found in California and Oregon, where it is threatened.*

PETER MAZZEO

Franklinia alatamaha *(above) is extinct in its natural habitat. First discovered in 1790 on the Alatamaha River in Georgia, it was last observed growing in the wild there in 1803. Fortunately, however, this lovely shrub is being grown in cultivation from specimens brought back by the naturalist who discovered it. Franklinia is the only extinct species of plant that the U.S. Post Office has commemorated on a postage stamp. Because Franklinia is the first species known to have become extinct in this country in man's recently recorded history, it is being proposed as the symbol of endangered plants.*

The story of Shortia or Oconee-Bells (Shortia galacifolia) *(right) has a slightly happier outcome than the story of the lost Franklinia. Once thought to be extinct, small populations of Shortia were later discovered. It is now known to grow in rich woods in Georgia, South Carolina, North Carolina, and Virginia; but it is listed as endangered and rare on Smithsonian's proposed list of endangered species of plants. The white to pink flowers are bell-shaped, to one inch long. Oconee-Bells needs intensive protection of its natural habitat if it is not to follow Franklinia to extinction.*



U.S. FOREST SERVICE

tion Association was represented at this meeting.] After further consultations with specialists, the revised lists comprise the proposed lists being presented to Congress.

THE SMITHSONIAN REPORT. Plants listed in this report are categorized in several ways:

Endangered: A species of plant in danger of extinction throughout all or a significant portion of its range is considered "endangered."

Threatened: A species of plant that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range is considered "threatened." This category includes species categorized as rare, very rare, or depleted.

Recently Extinct or Possibly Extinct: This category includes species no longer known to exist after repeated search of localities where they once existed or could be expected to exist. Some species are "extinct" in the wild but preserved in cultivation, such as the beautiful lost Franklinia, a shrub last observed in the wild in 1803.

When we were considering plants for inclusion on the proposed list in one of these categories, we had to ask ourselves some critical questions. One question is whether the species or subspecies is valid taxonomically; that is, could it have been incorrectly classified, or could it be a hybrid or simply a variation of a common plant? Another question is whether the plant is truly "extinct"; for example, does it really occur somewhere in small numbers or could it not have been observed or collected in a long time because it is inconspicuous, blooms only rarely or at unusual times, germinates infrequently, or has long periods of dormancy? Or does it occur in such an inaccessible habitat that it would remain unobserved? Some of these questions are difficult or impossible to answer for some of the species considered for these lists; therefore changes in status are expected for some of the entries as new information becomes available.

WHAT IS LISTED. The proposed lists of endangered, threatened, and recently extinct plants include only higher plants native to the United States, including Alaska and Hawaii.

Species and well-recognized subspecies and varieties are included; but forms, races, and hybrids are not. In some genera such as hawthorns and blackberries hybridization between species has produced many forms that have been classified in various ways and frequently named as species by some botanists; but because of taxonomic disagreement in such genera, these doubtful species were not included.

Some species on local state lists of endangered plants were not included on the national lists because they are abundant elsewhere in the country. For example, the Pink Lady's Slipper, *Cypripedium acaulis*, is on the New York state list of endangered plants but was not included on the national list because it occurs in large numbers in other states, particularly in the Appalachian Mountain area.

If a species rare in this country occurs outside the United States, it was not included on the proposed lists unless it is also rare elsewhere. For example, many species of orchids that are very rare in the United States occur commonly in the West Indies or other tropical areas, so they are not listed as endangered. Inasmuch as most species of orchids are rather widely distributed, only six kinds are on the proposed U.S. endangered list and fourteen on the threatened list, with none listed as "extinct." However, orchids are subjected to severe pressure by collectors and by habitat destruction, so unless they receive better protection, we can expect to see more species of orchids appearing on the endangered list.

The proposed lists exclude most species with ranges outside this country because data on their entire ranges and status elsewhere were not generally available.

The report lists about 10 percent of the flora in the continental United States, including Alaska, or about 2,000 species, subspecies, and varieties. Of this number nearly 100 kinds are recently "extinct" or possibly "extinct," about 750 are endangered, and more than 1,200 are threatened.

The cacti are one of the most endangered groups of plants. Seventy-two species, subspecies, and varieties of native species of cacti out of a total of almost 228 kinds—or about 30 percent—are listed as endangered or threatened, and four are probably "extinct."

The plant life of the Hawaiian Islands is one of the most vulnerable in the world. Of the 2,200 kinds of vascular plants in Hawaii, about 80 percent are considered rare and threatened in a paper being published by F. Raymond Fosberg and Derral Herbst, respected authorities on Hawaiian flora. The Smithsonian report includes about 50 percent of the Hawaiian flora as endangered or recently "extinct."

THE SMITHSONIAN'S MAJOR recommendation is that the only way to protect endangered plants is to preserve their habitats.

In the future the exact ranges of each endangered and threatened species will be mapped. Sites of aggregations of endangered species and centers of endemic plants (restricted to small localities) will be located. This information will help in developing recommendations for specific reserves that should be established for habitat protection. Many of these endangered species no doubt already occur in national and state parks, monuments, forests, wildlife and game refuges, and other public lands.

Measures in addition to those that will be covered by the Endangered Species Act could also be provided:

Ecological research should establish the causes for rarity of critical species, trends, reproduction success, and methods of assisting in increasing their populations. Proper ecological research would help to increase the chances of success in collecting and planting seeds and cuttings and careful transplanting to similar habitats if such measures should become necessary for any reason.

Commercial suppliers of cacti and other rare wild species perhaps could be encouraged to grow plants from seed. This practice could supply the market for such plants but remove pressure from wild populations. Such a program would be analogous to supplying zoos with endangered species of animals from captive bred stock rather than from the wild.

A COORDINATED national program to preserve endangered species of plants is long overdue. The beauty or interest of many species of plants is recognized and appreciated, as evidenced by the preservation of spectacular species in places such as Sequoia National Park, Saguaro National Monument, and Organ Pipe Cactus National Monument. The usefulness of plants, moreover, is considerable, and extinction of any species of plant or animal is an irretrievable loss of unique genetic material that can never be duplicated—which narrows our future options. Finally, plants should be protected because of their importance in maintaining healthy and diverse natural ecosystems—and because of the intrinsic value of all life. ■

Formerly the Director of the Ecology Program, Smithsonian Institution, Dr. Dale W. Jenkins has worked on national lists of rare, endangered, and extinct plants for three years and during 1974, as consultant, directed the Endangered Plant Project at the Smithsonian Department of Botany. In addition, Dr. Jenkins is Chairman, North American Regional Group, Threatened Plants Committee of the International Union for the Conservation of Nature and Natural Resources (IUCN).

Smithsonian's detailed recommendations, protective provisions of the Endangered Species Act pertaining to plants, and what you can do to help save endangered species of plants will be discussed in a forthcoming issue.—Editor.

Rate Your State

Endangered and Threatened Species of Native Higher Plants, by State

State	Endangered	Threatened
Alabama	27	46
Alaska	9	21
Arizona	64	58
Arkansas	5	17
California	242	393
Colorado	23	17
Connecticut	3	6
Delaware	2	5
District of Columbia	..	2
Florida	84	128
Georgia	23	65
Hawaii	637	202
Idaho	21	52
Illinois	5	16
Indiana	1	9
Iowa	1	2
Kansas	..	2
Kentucky	7	22
Louisiana	1	8
Maine	4	6
Maryland	1	8
Massachusetts	1	6
Michigan	5	7
Minnesota	3	7
Mississippi	..	12
Missouri	7	17
Montana	2	8
Nebraska	..	1
Nevada	43	84
New Hampshire	6	4
New Jersey	4	9
New Mexico	15	26
New York	3	14
North Carolina	16	48
North Dakota	..	3
Ohio	3	12
Oklahoma	5	6
Oregon	43	135
Pennsylvania	4	13
Rhode Island	1	4
South Carolina	9	35
South Dakota	..	1
Tennessee	25	31
Texas	95	135
Utah	56	101
Vermont	4	4
Virginia	11	32
Washington	16	72
West Virginia	..	11
Wisconsin	3	10
Wyoming	3	18

How to Save a Wildflower

NPCA Progress Report on Endangered Plants

SOMEWHERE in the Southwest a truck rumbles out of the desert, heading for a west coast city with a load of cacti including some of the last wild members of an endangered species. The commercial dealer might get several hundred dollars each for the rare cacti, which face a dubious future as house or garden plants. On the east coast another small marshland is drained to prepare for a new resort condominium, eliminating the habitat of a native wildflower. And in Hawaii cattle and goats—nonnative species man has imposed onto this lush tropical environment—overrun the habitat of an hibiscus plant. These are just a few typical examples illustrating grave threats to this country's native flora. But now help is on the way in the first nationally coordinated effort to help preserve rare and endangered species of plants.

As the January 1975 issue of this Magazine described, the Smithsonian Institution recently completed a painstaking year-long study of vascular plants (that is, flowering plants, pines and their relatives, and ferns) native to the United States. Under the authorization and direction of the Endangered Species Act of 1973, scientists working on the Endangered Plant Project identified about 2,000 species, subspecies, and varieties of plants in the continental states including Alaska as endangered, threatened, or recently extinct. "Endangered" species are those in danger of extinction throughout all or a significant portion of their range. "Threatened" species are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. "Recently extinct" species are those no longer known to exist after repeated search of localities where they once existed or could be expected to exist.

At the conclusion of their study, the Smithsonian convened a workshop at which scientists reviewed the preliminary lists of species and helped draft recommendations to preserve them. NPCA, having long been concerned about endangered species of plants, notably the American chestnut, participated in this workshop in August 1974.

In mid-January the Smithsonian reported to Congress the results of its study along with final recommendations on how to protect endangered and threatened vascular plants. Ten percent of the flora in the continental United States are included on the proposed "critical lists," with 761 species endangered, 1,238 species threatened, and 77 species identified as commercially exploited. Cacti are one of the most seriously affected groups of plants, with 30 percent of our native species of cacti endangered or threatened.

The situation is especially grim in Hawaii. Although the report lists 50 percent of the 2,200 kinds of Hawaiian vascular plants as endangered, threatened, or recently extinct, authorities on Hawaiian flora consider that actually as many as 80 percent of her higher

plants are rare and threatened. Moreover, the study lists 255 extinct species in Hawaii contrasted to 100 extinct species listed in the entire continental United States. The accompanying table lists the numbers of endangered and threatened species reported in each state.

The recommendations of the *Report on Endangered and Threatened Plant Species of the United States* (see below) stress the fact that effective protection of endangered plants requires not only protecting the plants themselves, but learning more about their specific ecological requirements and protecting their habitats. Many natural factors affect the abundance and distribution of plants, and many species have become extinct as a result of natural factors. But man's activities have greatly accelerated the process of extinction. Man is rapidly destroying natural habitats by activities such as strip mining, clearcutting, flooding, stream channelization, irrigation, agriculture, overgrazing, drainage of bogs and swamps, construction projects, destructive fires, prevention of natural fires, introduction of competitive exotic species, and use of biocides. Even more habitats could be destroyed if our energy-hungry nation grabs at development proposals without proper planning consideration of ecologically sensitive areas.

But now we have the beginning of a coordinated national program designed to help protect plants from these threats. The Endangered Species Act of 1973 is the first federal law to protect endangered plants as well as endangered animals. Consequently, the Smithsonian's study is the first effort ever made to assemble data on endangered and threatened species of plants on a national scale. Next, botanists will identify nonvascular plants (algae, fungi, lichens, mosses, liverworts) that should be protected; and they will map the exact ranges of all endangered and threatened species as an aid in choosing specific reserves for habitat protection.

In the meantime, the Secretary of the Interior must review the report to determine which species on the proposed lists he will accept as officially endangered or threatened. When the final lists are determined, the Secretary will publish them in the *Federal Register*; then those species will be covered by the Endangered Species Act of 1973 in several ways:

1. Practically all activities affecting *endangered* species of

Recommendations for Protecting Endangered Vascular Plants

(from *Report on Endangered and Threatened Plant Species of the United States*)

1. Preservation of endangered and threatened species of plants in their native habitat should be adopted as the best method of ensuring their survival. Cultivation or artificial propagation of these species is an unsatisfactory alternative to *in situ* perpetuation and should be used only as a last resort, when extinction appears certain, with the purpose of re-establishing the species in its natural habitat.

Habitat preservation must be given the highest priority in all conservation activities, particularly when dealing with the critical habitats of endangered species. Modification or destruction of critical habitats by human activities could result not only in a further reduction in population and distribution, but also in restriction of population expansion and recovery.

Transplantation and artificial cultivation should be a last resort, always with the ultimate objective of re-establishing the species in its natural habitat. Attempts to protect individual plants by fencing, for example, without preservation of the habitat or ecosystem upon which they depend will not provide successful perpetuation.

Protection and preservation of critical habitats and populations can be given high priority by landmark designations, conservation easements, acquisition, the institution of firm penalty procedures, and the habitats' designation as Natural Landmarks and Research Natural Areas.

2. The species of endangered and threatened plants that occur on federal and state lands should be mapped and given continued protection. More specific attention should be given by federal departments and agencies to the prevention of destruction or modification of critical habitats of endangered and threatened flora in accordance with the Endangered Species Act of 1973 and the National Environmental Policy Act of 1969.

The species of endangered and threatened plants on federal and state lands should be determined and exact locations should be mapped and made known to the appropriate authorities.

The Federal government could set a prime example of good policy by the protection of critical habitats of endangered plants and animals within the vast lands under its domain.

It would be advisable for the executive branch of the Federal government, through the Council on Environmental Quality, to give greater attention to endangered and threatened plant species in the reviews of environmental impact statements issued under the National Environmental Policy Act of 1969.

Federal agencies that are involved in land manage-

Continued on page 12

. . . 60 to 70 percent of endangered species of plants in the continental United States are on federal and state lands

plants are forbidden except as covered by a special permit from the Secretary of the Interior. (Trade in import and export of endangered species is controlled also by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.)

2. The Secretary of the Interior may regulate man's activities as they affect *threatened* species.

3. If the lists of endangered and threatened species of plants are also included in Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Secretary of the Interior can acquire by purchase, donation, or otherwise lands or waters, or interest therein, for protected habitat. He may use funds from the Land and Water Conservation Fund for this purpose.

4. All federal departments and agencies must utilize their authorities to carry out programs for conservation of endangered species of plants as well as animals and must ensure that actions authorized, funded, or carried out by them "do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species. . . ."

Recommendations—*Continued*

ment (including the Bureau of Land Management, the Fish and Wildlife Service, the Bureau of Outdoor Recreation, the National Park Service, the Forest Service, the Soil Conservation Service, the Atomic Energy Commission, the Department of Defense) should be reminded that endangered and threatened plant species and their supporting habitats are basic natural resources in the agencies' land use plans and in their natural resource surveys or inventories. State and local land planning agencies and similar bodies should be encouraged always to include in their guidelines on planning legislation a list of endangered and threatened plant species and the supporting habitats.

3. In accordance with Section 4 of the Endangered Species Act of 1973, the Secretary of the Interior should review the lists in this report and publish proposed lists of endangered and threatened plants in the *Federal Register*.

The Secretary of the Interior is required by Section 4 to determine, after consultation, the endangered or threatened status of plant species and to publish the resulting lists in the *Federal Register*.

Official publication of the lists of endangered and threatened plants is needed to prevent commercial exploitation which may ensue once the lists become public knowledge. After such publication, under the provisions of the Endangered Species Act of 1973 the endangered and threatened plant species will be protected from exploitation or destruction until some of the most endangered can be given the special attention required to prevent extinction. Publication of the lists is necessary also for those agencies and groups involved in the preparation of environmental impact statements in accordance with the National Environmental Policy Act of 1969.

4. The Secretary of the Interior is advised to ensure that the commercially exploited species of plants in this report are given urgent protection. Appropriate government agencies should be alerted and existing laws should be fully enforced.

The international Convention on International Trade in Endangered Species of Wild Fauna and Flora, signed by the United States, gives authority to the Secretary of the Interior to protect fully those species presently listed in the appendices of the Convention. In the United States this list already includes all species of Cactaceae, Orchidaceae, and ginseng (*Panax quinquefolium*).

All appropriate federal and state agencies should be notified of those species listed by the Convention and of existing laws pertaining to their protection.

5. It is recommended that the list of the species of endangered and threatened plants in this report should be submitted by the Secretary of the Interior to the Convention on International Trade in Endangered Species of Wild Fauna and Flora for inclusion in Appendix III. This listing will enable the Secretary of the Interior, acting as the United States Management Authority to the Convention, to acquire lands for the preservation of endangered species of plants.

Trade in endangered and threatened plant species of the United States, whether international, interstate, or local, should be prohibited by presenting the lists of those species in this report for inclusion in Appendix III of the Convention. Article XVI of the Convention on the procedure for listing species in Appendix III states that any party's Management Authority may at any time submit to the Secretariat a list of species which it identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and requiring the cooperation of other parties in the control of trade.

6. Since protection alone may not be sufficient for

Under this provision, endangered species of plants occurring on federal land or otherwise affected by federal activities must be given suitable protection. For example, an endangered species that occurs in a national forest must be protected from effects of timber harvesting, outdoor recreation, cattle and sheep grazing, and mining. An endangered species in a national park also requires special protection, particularly if it occurs in a camping or recreation area. It is estimated that 60 to 70 percent of endangered species of plants in the continental United States are on federal and state lands.

This provision is especially strong because government agencies will have to recognize endangered species of plants as basic elements of land use planning. Environmental impact statements will have to consider possible effects on endangered plants. Plans for dam construction, wetlands drainage, highway construction, channelization—any of these and other projects that are *federally funded* may be delayed or changed because of the existence of populations of endangered species of plants that might be adversely affected.

5. States are responsible for protecting endangered species except for those on federal land, and many states already have fine conservation programs. About 30 states have collected data on endangered flora on their lands; the others can use the federal list to make their census. If states do not act to protect endangered species under their jurisdiction, the federal government will assume such protective responsibility.

6. Provision is made for adding to or deleting from lists of endangered and threatened species of plants.

7. Stiff penalties are provided for infractions of protective laws and regulations.

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the survival of some populations of endangered and threatened species, monitoring of population levels is needed. For declining populations, research is necessary to determine the causes of rarity and to ascertain what can be done to save the species.

Protection of plant habitats may be insufficient for the preservation of some populations of threatened and endangered species. Consequently, it is essential that monitoring of populations be undertaken to determine trends in their levels and viability. Monitoring of plant populations includes observation of population size (decline or increase), condition of habitats, reproduction, and any changes in geographical distribution.

Federal and state agencies involved in land management should monitor population levels in areas reserved, protected, or otherwise identified as refugia for one or more threatened or endangered species. These agencies should conduct scientifically based management programs, including cost-sharing arrangements, for threatened and endangered populations on protected non-federal lands.

Research essential to development of management programs should be conducted where species continue to decline, and necessary management programs based on this research should be planned and carried out to maintain or increase population levels and viability.

Federal agencies and departments with research and/or land management programs already underway should be encouraged to conduct or sponsor expanded research on the biology of endangered and threatened species, investigation that is necessary to appraise the survival status of these species and to provide guidance for management in order to maintain, perpetuate, or restore the populations.

7. A "Registry of Endangered and Threatened Plants" should be established on a permanent basis to continue to collect, evaluate, and update all pertinent information available to interested national and international organizations.

A national registry office would be required to maintain such a register on a permanent basis, and to collect, evaluate, synthesize, and publish information on all endangered and threatened plant species, commencing with vascular plants of the United States, including Hawaii and Alaska. The registry and coordination should include central card files and maps, a specialized library, use of a computer, and a small staff of experts. The register would require continual updating of information on the location, status, habitat requirements, reproductive behavior, population size, and commercial and private exploitation data on endangered and threatened species. The register should be available to the public.

8. The lists of endangered and threatened plants should be given wide exposure and publicity. Colored illustrations should be displayed in public places, in publications, and on postage stamps. Interested organizations should be encouraged to assist in publicizing the need for protection and preservation of endangered and threatened species of plants.

The lists and illustrations of endangered plants should be given wide exposure and publicity, and copies should be made available to appropriate organizations and to the public at large. Colored illustrations of endangered plant species of the United States should be prepared for general distribution and for prominent display at parks, nature reserves, museums, and tourist centers. They should be sent to botanical gardens, to horticultural, gardening, and conservation groups, and to educational establishments from elementary schools through colleges and universities.

Displays of this kind have been successful in Europe. For a number of years the Swiss have posted in public places colored pictures of rare and endangered species

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AT LAST there is a brighter outlook for endangered species of plants. However, although the report takes a giant step in the right direction, it could have been stronger on two points: some botanists believe that not all species were listed that should have been listed, and the final recommendations were weakened from the draft version by failing to impart an adequate sense of urgency.

Plant enthusiasts cannot yet rest on their laurels. Until the lists of endangered and threatened species are published in the *Federal Register* and the Secretary issues regulations, habitat destruction and collecting will continue unchecked. The Secretary of the Interior should move quickly to make the lists official and to begin protective efforts in strict accord with the report's recommendations. But even after the lists become official, the regulations and laws must be enforced. An informed and alert populace must help ensure proper monitoring and enforcement.

NPCA will keep readers informed on progress of protective efforts on behalf of the nation's endangered and threatened plants.

Help Save Endangered Plants

YOU can help protect endangered and threatened plants now—

—By urging your state conservation agencies to provide adequate protection of endangered and threatened plants under their jurisdiction.

—By informing yourself regarding endangered and threatened species in your area. Until the official federal lists are available, contact your state conservation agencies for this information. Does your state have protective laws? Are they adequate? If not, why not?

—By arranging for the long-term protection of any endangered or threatened species on your own land and encouraging others to do the same.

—By assuming the moral obligation not to harm any endangered or threatened species by your own actions and to teach by example your family, friends, and neighbors a conservation ethic.

—DO NOT TRANSPLANT endangered species of plants. If they are in imminent danger of unavoidable destruction—such as bulldozing—then obtain advice from knowledgeable botanists as to proper action to take. (See January 1975, p. 13.)

—By being alert for infractions of protective regulations and reporting them to responsible authorities.

The fact that a species does not appear on the "critical lists" must not be interpreted as a license for exploitation or destruction. Although many species were not considered rare enough to be listed, they may be rare in your area; moreover, many species probably were omitted that should have been listed. Therefore, it is best to leave wild plants where they are for others to enjoy.

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that are protected by law. Since the rich alpine flora is a great attraction and temptation to tourists, the intent of such displays is to make the public aware of the tenuous existence maintained by some populations of rare plants that people encounter.

In 1974 the Botanical Society of the British Isles published a poster in color, depicting 20 of the rarest endangered species in Great Britain. Simultaneously, a succinctly worded handbill in color was published and distributed to members of the Society. These items are now available to the public for a minimal charge and apparently are popular as decorative materials.

The larger area of the United States and the number of endangered and threatened species affords an opportunity for the preparation of *regional* posters that would emphasize the endangered species of particular states and regions where endemism is high such as California and Hawaii, and those of selected natural areas. In addition, garden and horticultural groups should be asked to encourage and cooperate with local and state authorities in efforts to publicize these species.

The Federal government might consider the value of the publicity afforded by a series of postage stamps portraying endangered and threatened plant species, as done by several other countries. In the United States only one listed species, the lost Franklinia (*Franklinia alatamaha*), is shown on a stamp, issued in 1969.

9. No new federal legislation is required at this time. However, after a reasonable period, a review of the effectiveness of the Endangered Species Act of 1973 may be required to provide better protection to the endangered and threatened plant species.

The Endangered Species Act of 1973 appears to provide adequately for the protection of listed endangered and threatened species of wildlife and fish, but it differs for plants as follows: (1) The term "species" includes plant subspecies only and does not include varieties. (2) The Secretary of the Interior does not have the authority to acquire land for the purposes of conserving endangered and threatened plants that are not listed in the appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora. (3) The Act does not prohibit the "taking" of endangered and threatened plant species in the United States.

CACTI
Bizarre, Beautiful, But In Danger

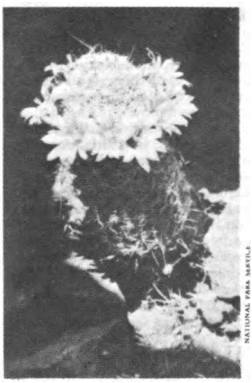
Cactus habitat must be preserved if many rare native species are to survive

by LYMAN BENSON

THE CACTUS FAMILY may be the most endangered of all major groups of plants. About 72 species, or 26 percent, of the 268 taxa of native cacti in the United States are either so rare or so restricted in occurrence as to be vulnerable to extinction. For although some species, such as the prickly pear, are hardy and adaptable, most cacti are highly specialized, able to thrive only in narrowly limited habitat niches that provide the exacting living conditions they require.

Most species of cacti grow in deserts or in dry areas nearby; but some occur in the tropical jungles of the Everglades or in cool mountain forests up to eleven thousand feet in elevation, and some are to be found in open areas of spruce forests as far north as Peace River in northern British Columbia and Alberta, Canada. Native cacti are found in every state except Hawaii, Alaska, Vermont, New Hampshire, and Maine.

Some cacti are wide-ranging, adaptable, tenacious, and only here and there vulnerable to disturbance by man. For example, some species of prickly pear have survived and are abundant because they occur primarily on sandy, nonagricultural, nongrazing land where man is not interested in removing cacti. Still other species are safe becaue they grow on rocky outcrops not suitable to would-be competitors. Other prickly pears not only do not present enough of a problem on grazing lands to be removed, but they provide emergency food for cattle during drought. Some species that do exclude range animals from grass are so tenacious that it is almost impossible to eradicate them.



Species of Mammillaria are small and widespread, but their lovely flowers make them popular with collectors.

Only a few of the smaller cacti are as wide-ranging as the prickly pear. Examples include the coryphanthas, or pincushion cacti, which do not exclude cattle from grasslands and are therefore not important in range management. Coryphanthas flowers, however, are attractive, and this attribute makes these cacti popular with collectors. Removing the plants for cultivation may therefore reduce abundance in certain localities.

The hedgehog cacti are also small and adaptable. For the most part, like the coryphanthas, the hedgehog cacti are not in danger of extermination, though some rare local varieties are vulnerable.

Most species of cacti are neither so variable nor so well adapted to a wide range of environments as prickly pears, coryphanthas, and hedgehogs but are restricted to a few areas with severe climates, mostly in deserts or in nearby dry grasslands or woodlands. Within these areas each species of cactus is further restricted to a particular habitat niche related to precipitation, prevailing temperature, exposure to the sun, amount of drainage, and soil chemistry and texture.

Within its niche each cactus must compete with other plants that may shade it out or deplete water near the surface of the soil, the only level at which cacti have absorbing roots. On the other hand, some species, such as the saguaro, depend on other plants to form a seedbed and provide shade.

Many cacti, other than most chollas or prickly pears, are restricted by texture and chemical content of the soil, which are determined partly by the types of rocks from which the soil is derived. Some species grow in remote places on limited outcrops of a particular rock or in pockets of a special soil that is poor for agriculture or in dry areas that are impractical to irrigate. In some areas, the soil is so extreme in its composition that collectors don't think to look there. Even when such

plants are located, they often do not become popular in cultivation because they do not live long in ordinary soils or potting mixtures.

The chief threats to cacti are from commercial exploitation, overzealous collecting, housing construction, agriculture, grazing, and fire.

COMMERCIAL EXPLOITATION. Rarity of a species or variety of a plant increases the commercial demand for it. Several of the new very small species of cacti I have described in scientific publications have appeared almost instantaneously in commercial catalogs in various parts of the world, and the prices have ranged from $25 to $50 a plant. This situation has occurred despite my considerable caution about revealing the exact location of collection. For scientific accuracy, some kind of reasonably accurate statement about soil composition and location must be made, but I have described only the general area rather than a specific locality to avoid promoting extermination of the plant at the type locality. Thus, at least collecting has been dispersed to a wider area, and in most cases—but not all—the plants first discovered are still there.

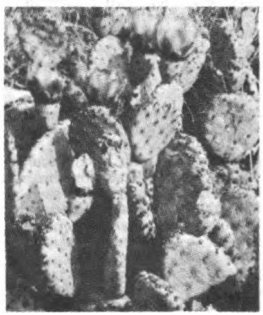
OVERZEALOUS COLLECTING. Adding to private collections in greenhouses and gardens is a relatively minor cause of reduction of numbers of a species. However, it has led to decimation of some rare plants in at least the few localities in which they are known to occur. In one southwestern state a probable new variety of hedgehog cactus is reported to have been exterminated at the type locality simply because too many people knew its whereabouts. Probably each person took only a few plants for his garden; but there were not very many to begin with, and during the past several years none has been found.

In northern Arizona a low-growing cactus, *Pediocactus peeblesianus* var. *peeblesianus*, in diameter the size of a quarter to a fifty-cent piece, has been known for nearly forty years to occur through an area only five or six miles long, and there it is rare and obscure. A number of scientists spent days on hands and knees looking for this plant. After many years it was found by an enthusiastic group of amateurs who were deeply concerned about the rarity of the species and its possible disappearance from nature. Therefore many people were shocked to see a woman at a national convention with a number of the plants sewn to the brim of her hat!

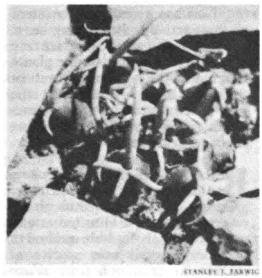
HOUSING CONSTRUCTION. Rare cacti occur mostly on hills; housing developments, in valleys. However, in some areas housing projects are so extensive as to blot out everything. Near Albuquerque, New Mexico, local cactus enthusiasts removed plants of the rare and obscure *Pediocactus papyracanthus* to cultivation to save them before bulldozers arrived. In the vicinity of San Diego, California, several rare, localized species occur on relatively flat land or on low, rolling hills. The whole area from at least Del Mar to the Mexican border seems destined to become one great city, and the outlook for the native cacti there is bleak. In Florida most cacti occur in the stabilized sandy land in back of the beach along both the Gulf and Atlantic coasts, and on many of the Keys. With the fantastic growth of Florida's urban areas, cacti and many other native plants may be eliminated. Some are of restricted occurrence, and only a little commercial development will eliminate them.

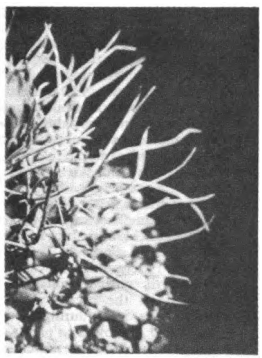
Four species of particular interest occur on one Florida key. All these species occur on the limited dry areas of some islands of the Caribbean; but, although one of them is known from two other localities in the Keys, the only occurrence of three of them in the continental United States is on one key. Already there is housing on this key, and one housing development on one corner of that key could wipe out three of the species in this country and limit the other one to two areas in which it was

Pediocactus peeblesianus var. peeblesianus (right) is an extremely rare and localized cactus ranging in size from the diameter of a quarter to a half-dollar. Pediocactus peeblesianus *var. fickeiseniae (below) is about the size of a golf ball or slightly larger. In both varieties of this species the largest part of the stem is underground. During dry weather this part contracts and pulls the rest of the plant to about ground level. Then blowing dust and sand cover the plant and hide it from view.*



LYMAN BENSON





Clearing of land, overgrazing, and frequent fires in southern California have favored alien species of plants to the disadvantage of native species such as the rare spineless prickly pear Opuntia littoralis *var.* austrocalifornica *at left.*

collected long ago and in which even now it may not persist.

AGRICULTURE. For the most part, agriculture is at peace with cacti in much the same way Sitting Bull was at peace with his enemies—because he had killed them all. All but an infinitesimal amount of the good agricultural land in the United States is farmed or has become urban. Much of the poor land was converted to agriculture at one time and then allowed to start the long road of natural succession back toward a natural area, only to have this process interrupted by several more attempts at agriculture. This cycle has tended to eliminate the smaller species of cacti. If they ever occurred in the deep soils of the valleys, they are gone now.

GRAZING. Although some aggressive cacti, including prickly pears and chollas, may gain because grazing removes competitors, grazing is usually unfavorable to cacti, especially to small species or to the seedlings of large species. Some of the plants are eaten by animals for water; some are trampled; and some are no longer able to reproduce effectively because the native plants that provide their seedbed and shade are killed. For example, the saguaro, *Cereus giganteus,* depends on other plants to provide humus and shade during the seedling stage and for a number of years afterward, but the smaller plants that provide humus have been obliterated in many areas. On the whole, however, grazing does not eliminate smaller cacti or seedlings but tends to restrict them to favorable spots where some individuals may persist despite range animals—unless goats are included among the grazing and browsing animals. If goats are present, not much else is.

FIRE. Fire destroys many plants and benefits others. Hot fires kill forests and change the scene to an early stage of a secondary ecological succession, requiring many years or even centuries before the normal climax forest vegetation is restored. On the other hand, fire maintains grasslands by killing out seedlings of shrubs and trees, thus preventing their encroachment into open land.

Many cacti are exceedingly vulnerable to fire, but fires seldom occur in cactus habitat. In deserts combustible plants commonly grow too far apart for fire to spread from one plant to another. Along the edges of deserts and in chaparrals and grasslands adjoining them, however, fire is a major factor; cacti there can persist only in areas where a fire does not become really hot as, for example, on rock outcrops, on sandy flats, or on hillsides without a dense cover of brush.

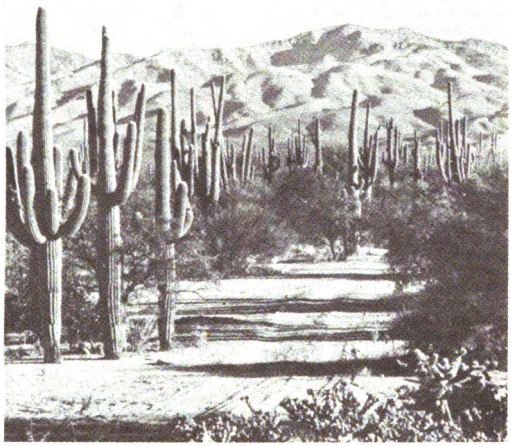
In southern California fire excludes cacti from the chaparral and restricts them to dry, gravelly washes or to grassy disturbed areas. Here the nature of the cactus populations has been altered gradually since the coming of the mission fathers in 1769. The padres brought Mediterranean plants that had come with the Spaniards to Mexico. They brought cultivated plants, such as figs and grapes, and the seeds of many weeds. The missionaries also brought *Opuntia ficus-indica,* the Indian fig originally native and cultivated in many forms in Mexico and now grown in warm climates throughout the world. This plant is a fruit tree, and it was cultivated about the missions and villages and on the great *ranchos* in southern California. Although it escaped from cultivation only rarely, its pollen was carried by native bees and beetles to the flowers of small local species of prickly pear, *Opuntia littoralis* (various varieties), which produced many hybrids. In addition, clearing of the chaparral, frequent fires, and overgrazing favored the Mediterranean weeds over native species of plants, and vast areas came to be dominated by these weeds, including particularly combustible annual weedy grasses like the bromes.

During the dry summers of southern California, fires swept through the area, burning the grasses and killing the cacti. Only some of the hybrids that formed

dense thickets that excluded the grasses could survive. As fire would spread, such plants were singed only around the edges of the thickets, and a large center remained to regenerate and enlarge the cactus patch after the fire.

For two hundred years selection has favored the thicket-forming types of hybrids and has nearly eliminated original native cacti. Native *Opuntia littoralis* var. *covillei* and var. *austro-californica* have become relative rarities. These plants still exist in their extreme form in dry, gravelly washes where they have been protected somewhat from fire; but the number of plants not hybridized is becoming small, and gradually the native taxa are losing out to hybrids able to cope with fire. Obviously, no ordinary protective measures can save the native species in southern California. They are being absorbed into a new genetic system brought about by large-scale environmental changes due to a burgeoning human population living over the whole geographic range of these species.

In the perennial grasslands occurring from Arizona to Texas, fire merely burns off the dry, dead tops of the grasses; after the next rain regeneration from underground is rapid. Most of the cacti there occur in areas either disturbed by overgrazing or shielded from fire by rocky or thin, sandy soils not supporting a dense growth of grass. The recent reduction of fire, originally set annually by the Indians to make better pasture for game, has altered the character of many grasslands. Some have become forests or dry woodlands because seedlings of trees or shrubs no longer are eliminated by fire. The Desert Grassland of Arizona is being invaded by desert woody plants. This change of plant communities has upset the ecosystem of the cacti by eliminating some competitors and substituting others; by removing some plants that aid in the survival of cacti or their seedlings; by changing the soil character and its moisture-holding capacity; and by altering exposure of cacti to the sun.



NATIONAL PARK SERVICE

Saguaros sprout only in the shade of another desert plant; they may live as long as 200 years and may attain a height of 50 feet with 40 or 50 arms. They grow their first arm at about age 75. Saguaros are vital to the ecosystem of the Sonoran Desert, providing food and shelter to many desert creatures.

BECAUSE the effects of housing construction, agriculture, grazing, and fire are difficult to combat except in limited areas, usually the only feasible method of preserving small rare species of cacti is to prevent or at least reduce commercial exploitation and overzealous collecting.

Many people throughout the world enjoy cacti, and reasonable propagation and marketing of plants are desirable. Probably unscrupulous commercial dealers are relatively few; most dealers are people of conscience, and they follow reasonable procedures. The crux of the problem is the *method* of obtaining plants for sale. If seeds are collected and plants are propagated from them, sale is desirable and legitimate. The capacity of plants in the field to produce seeds so far outstrips successful reproduction from them that removal of some seeds is virtually inconsequential. If all the cactus seeds produced in the desert during only one year were to grow into plants, the desert would become an impenetrable thicket. Thus, any attempts to save rare species of cacti should be concentrated primarily on preventing the removal of living plants from the field, which places a severe drain on the native population.

Overzealous collecting for home propagation is intended to come under the same laws. However, regardless of laws, an educational campaign should bring some direct results and enlist the support of garden enthusiasts and the better commercial dealers, as well. However, laws will not be enforced unless they have public support and the greatest of care must be taken to make the laws fair and equitable and neither too severe nor too mild.

For some species of cacti salvation may be secured in protected areas. Many cacti occur in national parks and national monuments such as Organ Pipe Cactus National Monument and Saguaro National Monument in Arizona or Big Bend National Park in Texas. Unfortunately, under old agreements grazing is permitted in some national monuments. It is a potential tragedy to allow it to continue.

Some rare species occur on only a few outcrops of a particular rock scattered over a few to many miles. These rocky places are practically worthless to the cattle or sheep ranges around them, and their acquisition cost should be relatively small. Many of them occur on public lands.

Although the federal government is not likely to set up a separate administration for a few hills harboring one species of cactus, some areas with rare and endangered cacti can be linked with an existing facility. For example, a very rare localized species occurs in northern Arizona just outside a small national monument. Almost the entire known range of the species is on a single fantastic soil outcrop no more than a quarter mile wide and several miles long. The area is a part of Indian lands, but inasmuch as it has no value for agriculture or grazing, an arrangement for inclusion in the national monument may be feasible. Fortunately, the tribe is aware of the rarity of the cactus and is concerned about its preservation, which may be helpful.

As another example, *Pediocactus peeblesianus* var. *fickeisenae*, occupies hills not far from Grand Canyon National Park and Grand Canyon National Monument, and some of that habitat could possibly be added to the park system.

A study of individual hills occupied by unusual cacti may reveal that other plants of special interest share the peculiarities of the soil which may strengthen the case for preservation of the area.

THE CACTUS FAMILY not only includes a high percentage of rare local species, but also it is particularly vulnerable to destruction by man because of the public and commercial interest in these bizarre plants with beautiful flowers. The obvious methods of protection are by requiring propagation from seeds rather than removal of living plants for sale; by adding some areas in which rare cacti occur to existing neighboring national parks and national monuments and state and county parks; or by encouraging private organizations and individuals to set aside small areas of land for preservation. In most cases preservation of the cacti will have to be combined with saving other plants and animals and with setting aside areas that also possess geological and archeological interest.

The means exist in the provisions of the Endangered Species Act of 1973; the effort must be made to save these rare and beautiful plants. ■

Dr. Lyman Benson, Professor Emeritus of Botany at Pomona College, is a specialist in the plant life of California and the southwestern deserts. Among his numerous books and papers on this subject are *The Cacti of Arizona*, *The Cacti of California*, and the forthcoming *Cacti of the United States and Canada*. He contributed the major information on cacti to Smithsonian's *Report on Endangered and Threatened Plant Species of the United States*.

Editor's Note

MORE PROCRASTINATION AT INTERIOR

The movement to protect cacti and other endangered species of plants has encountered a setback in the Interior Department's lack of action.

As charged by the Endangered Species Act of 1973, during 1974 the Smithsonian Institution reviewed the status of native vascular plants of the United States and in January 1975 sent to Congress a list of some 2,000 species that are endangered or threatened, along with recommendations to save them. (See January and April 1975 issues of this Magazine.)

The Interior Department is now responsible for reviewing the report and for publicly proposing the final list and protective regulations in the *Federal Register*. Some 30 percent of our native species of cacti are listed as endangered or threatened. Inasmuch as cacti are already listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, protection of cacti under the Endangered Species Act as well would permit the use of Land and Water Conservation Fund monies for acquisition of protected habitat.

In late March NPCA pointed out to the Interior Department that action on this report has been delayed since January in the Office of Endangered Species of the U.S. Fish and Wildlife Service. The situation did not seem to have changed at press time.

On the positive side, the Park Service has canceled a grazing permit at Organ Pipe Cactus National Monument, but this action is under litigation by the permittee. Two grazing permits at Saguaro National Monument expire at the end of 1975, and the permittees have been informed that NPS does not intend to renew them.

NPCA members can help by supporting National Park Service efforts to phase out grazing in Organ Pipe Cactus and Saguaro national monuments, and by demanding immediate and positive action on the *Report on Endangered and Threatened Plant Species of the United States*. Write to:

Hon. Nathaniel P. Reed
Assistant Secretary
Department of the Interior
Washington, D.C. 20240

DENAL HERBST

The Deflowering

Large samples of all kinds of habitat must be preserved inviolate if a significant number of Hawaii's endangered species of plants is to be saved from extinction

SEVENTY PERCENT of Hawaii's species of plants are in danger of extinction.

To understand how that statement can be true and why it is important, we must first look at the ways in which plants and animals develop on isolated islands.

Islands are a natural museum for the study of evolutionary processes. Charles Darwin developed the theory of evolution by observing the results of natural selection and adaptation in isolated populations of animals in the Galapagos Islands. The Hawaiian Islands are by far the most isolated and environmentally diverse of islands, exhibiting wide variations in elevation, exposure, wind, temperature, rainfall, soil, and geologic age. Hawaii, therefore, provides the evolutionist with an exceptional microcosm for studying natural phenomena. Many of the same evolutionary processes and phenomena that have helped to develop the diversity of life on the continents have also occurred in the Hawaiian Islands, where many different kinds of plants and animals have evolved from a small number of original species. Because these islands encompass a much smaller area than continents and because they are isolated from other land masses, they have fewer species, and the evolutionary interrelationships among species, climate, and habitat are more obvious.

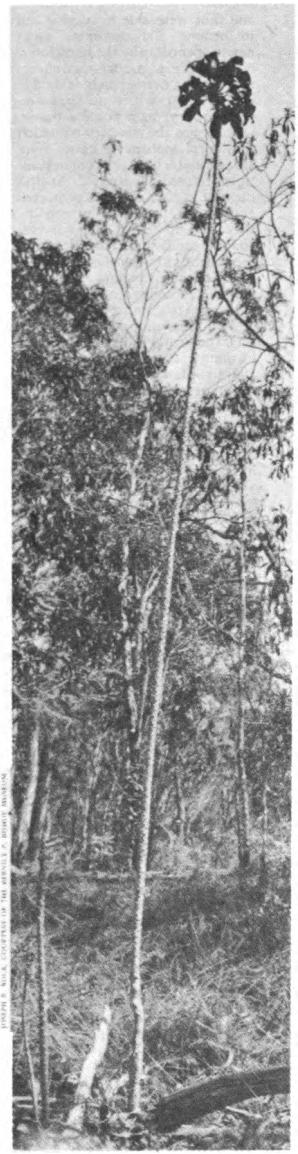
Argyroxiphium kauense, *which grows about six feet tall, is a close relative of the famous silversword of Maui and is found only in one locality in the Kau District on Hawaii. Here a few plants are still found, exposed to the ravages of goats and cattle.*

One of the most striking examples of Hawaiian evolutionary relationships occurs between the remarkable honeycreeper family of birds *(Drepaniidae)* and their food supply. Many of the honeycreepers have hollow, tubular tongues that enable them to suck nectar from flowers. Other species of honeycreepers have long, slender, curved beaks to aid them in getting their food in the form of nectar and insects from the long, curved flowers of the Lobelia family of plants. Evolutionists might fairly ask, however, whether the honeycreepers adapted themselves to their food supply or whether the long, curved flowers of the lobelias might be an adaptation to pollination by drepaniid birds; the relationship is nevertheless obvious.

On islands such unusual phenomena as woodiness in normally nonwoody plants such as violets, lobelias, geraniums, and plantains stand out. Gigantism, rosette tree habit, upland species of seashore plant groups, and disproportions of certain forms of plant growth characterize island floras. The incidence of such botanical oddities poses questions that may be an-

# of Hawaii

by F. R. FOSBERG



Delissea undulata, a weird, unbranched rosette tree up to thirty-five feet tall, is a member of a genus of the lobelia family found only in the Hawaiian Islands. All species of this genus are on the point of disappearance. The forests where they live are exposed to ravages of cattle, cattle ranchers, and foresters; and the young plants do not have much chance to survive.

swered if scientists are able to continue to study these phenomena.

The animals of islands show comparably bizarre features—flightlessness in birds, gigantism, adaptation to cave life, intricate courtship behavior—which also pose interesting evolutionary and ecological questions.

Very few terrestrial vertebrate animals were able to colonize oceanic islands except, of course, birds. The only native terrestrial Hawaiian mammal is the Hawaiian hoary bat, a flying mammal. This bat and the few reptiles that managed to populate the islands were small and probably arrived rather recently in geologic terms. These waifs had no great evolutionary impact, but the almost complete lack of large plant-eating animals had very important implications in the evolution of the plants that originated on the islands.

Hawaiian plants did not develop botanical defenses such as prickles, stinging hairs, acrid or poisonous properties, or tough root systems that plants have developed in areas where large herbivores were present. Hawaiian plants did not need such protection. Of the more than 2,400 species and varieties of native flowering plants in Hawaii, 97 percent of which are found nowhere else in the world, only about three species have prickles or other armaments. These three species clearly came to the island armed, as they are found elsewhere as well as on Hawaii and belong to prickly genera.

HAWAIIAN PLANTS did not need protection, that is, until Captain James Cook introduced goats and English pigs in 1778 and Captain George Vancouver brought with him sheep and cattle in 1793. With the best of intentions, these two men completely changed the natural course of events. The introduction of these animals was a catastrophic occurrence unmatched even in the millions of years of volcanic activity that formed the archipelago. The Hawaiian flora, evolving in a volcanic environment, had developed means of surviving the frequent eruptions of lava and ash, and growing and thriving on the new land surfaces. But these same plants were defenseless against the trampling and browsing of four-footed invaders.

Not only were the unique native plants themselves vulnerable to the ravages of these beasts but the Hawaiian forests, opened up by grazing and trampling, were invaded by nonnative plants. Otherwise, these newcomers would have found it difficult to gain a foothold in habitats already fully occupied by well-adapted native plants. Many of the exotic species of plants had been transported from areas where they had to evolve defenses against browsing animals

and thus were able to survive and to occupy and dominate areas newly opened up by the herbivores.

The cattle, pigs, goats, and sheep, too, found a marvelously favorable environment, where no large predators except man posed a threat, where even the diseases to which they were victims at home were absent, and where they could multiply almost uncontrolled. At first these animals were even protected against man by taboos imposed by the chiefs, to permit their survival and multiplication. The impact on the vegetation was catastrophic, so much so that it is now almost impossible to know the exact nature of the vegetation that covered large areas in pre-European times.

Of course, the coming of the first humans, the Polynesians, to Hawaii—about 400 A.D.—brought about great changes in the natural environment. Some species of plants doubtless disappeared as a result of subsistence farming of suitable areas. However, we will never know much about the changes wrought by the early Hawaiians in the more than one thousand years between the Polynesian discovery of the islands and the arrival of the Europeans; the early Hawaiians had no written language.

We can be sure, however, that their impact was minor compared with that of the American immigrants who introduced plantation agriculture. Monocultures of sugarcane and pineapple left no room on suitable land for any other plants except a few exotic weeds, camp-followers of man, that were adapted to cultivated land.

Cattle-ranching on a large scale, also developed by American immigrants, intensified the effects of feral animals on wild vegetation and resulted in clearing of vast areas of native forest and substituting introduced forage grasses and their accompanying weeds.

Certain of the introduced grasses and weeds are pioneers, well-adapted to rapid occupation of any open ground in sunny situations. These plants have become abundant on new ash and lava substrates, crowding out less well-adapted native species. The same types of exotics quickly colonize areas of bare soil that have been disturbed by human activities.

Finally, with the enormous increase in the human population, the building of roads, and availability of automobile transport, few places in the islands are too remote for human habitation. Certain habitats, especially lowland areas near beaches, and even rocky shores, are rapidly being built up to colonies of weekend, vacation, and retirement homes, not to speak of enormous new tourist hotels. Such development constitutes direct competition for living space between humans and what is left of the native lowland plants, a competition to which there is only one likely outcome.

AWARENESS of the increasing scarcity and even total extinction of many of the remarkable species of Hawaiian plants is not new. Dr. Joseph Rock, famous explorer and botanist, who dominated Hawaiian botany in the first and second decades of this century, called attention to the fact that only single trees remained of the antediluvian-looking *Clermontia haleakalanse* and the strange endemic genus *Hibiscadelphus*, a hibiscus with flowers curved perhaps to fit the beaks of the honeycreepers. He also reported that only a few trees remained of the beautiful tree cotton, *Kokia drynarioides*, of the island of Hawaii; that only one tree remained of a similar tree cotton from Molokai, which has since disappeared; and that the one tree cotton formerly found on Oahu had vanished.

Dr. Rock deplored the grazing of cattle in such natural collections of rare and extraordinary trees and shrubs as were found in Puu Waa Waa and Kipuka Puaula on Hawaii and Auahi forest on the leeward side of Haleakala Volcano on Maui. He and others signaled the destruction of the remarkable flora of the island of Lanai because of overgrazing by feral and domestic animals.

Throughout the six decades of this century a few persistent voices, mostly botanists and naturalists, called attention to the serious plight of the native plants and animals of the islands. Unfortunately these people were not heard or heeded in the right places. Those men who controlled land-use policies had room in their minds for only one serious activity—making money. The destruction of the habitats essential to the continued existence of Hawaiian plants was stepped up as new opportunities to make money appeared. Fortunately some of the wetter areas were afforded some protection as water reserves when it became evident that water was a limiting factor in sugar production.

Most deplorable of all was the attitude of a few landowners, ranch and estate managers, and experiment station officials who understood and appreciated the interesting native biota of the islands, and some of whom even entertained themselves by collecting and studying ferns or land shells, but who separated these interests completely from their business activities. Some of these men were in an excellent position to protect and preserve areas essential as habitats of unique plants. They could also have educated and persuaded their friends and relatives in similar positions. As a group they might have been able to save many of the most important localities where species of plants have since disappeared forever. They and their stockholders might have been slightly poorer, but the people of Hawaii and of the world would have gained a richer environment to live in and enjoy.

UNTIL RECENTLY, knowledge of the precarious condition of the Hawaiian flora (and fauna) was in a more intuitive than factual state. Certain cases were well known and documented. Most were suspected or known but with no solid data and little or nothing written down. For more than twenty years, with the help of

Alsinodendron trinerve

A commonly observed tendency of Hawaiian plants is to evolve a conspicuously woody habit in groups of plants that ordinarily are small herbs elsewhere.

Alsinodendron trinerve *is an amazing relative of the lowly chickweed, which, in isolation under Hawaiian conditions, has evolved into a shrub three to five feet tall.*

Hesperomannia lydgatei, *for which a good name would be "thistle tree," is a woody member of the sunflower or daisy family. The species of this genus inhabit montane rain forests and are all extremely rare and susceptible to grazing animals.*

Geranium arboreum *is actually a small tree, the culmination of evolution of woodiness in the Hawaiian geraniums. It has also evolved a rather curved flower, as have a number of other groups of plants in Hawaii. It is exceedingly rare and local in one of the gaps in the walls of the great volcano Haleakala (House of the Sun) on the island of Maui.*

Hesperomannia lydgatei

Geranium arboreum

many colleagues, I have been assembling a card file of species of plants considered rare, endangered, or extinct in the Pacific Basin, but no organized effort was made to document the situation.

During the past decade, however, with the rise of general environmental awareness in Europe and North America, a consciousness arose that valuable and interesting species of animals and plants were disappearing. The expression "endangered species" became familiar. In 1969 the Endangered Species Act was passed by the U.S. Congress to afford protection to endangered species—but only animals were mentioned. In 1973 this oversight was amended and plants were specifically included, and the Smithsonian Institution was instructed to prepare a report on endangered species of plants in the United States.

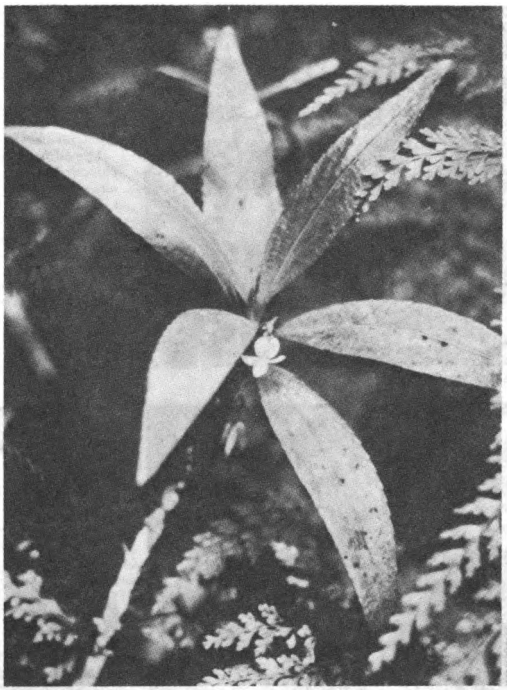
In connection with the preparation of that report, an effort was made to develop and complete the part of my card file that pertained to Hawaiian plants. A systematic effort was made to consider and evaluate, species by species, the condition of all the ferns and flowering plants of the Hawaiian Islands.

This effort resulted in a list of rare, endangered, and extinct plants of the Hawaiian Islands that contained 1,765 species and varieties, of which 273 were considered possibly already extinct. Of these, 1,088 were deemed in such precarious state that they were included in the list that made up the body of the Smithsonian's report to

Congress, the first step toward their being officially protected by federal law. The original Hawaiian list was published by Dr. Derral Herbst and me as the first number of a new botanical journal, *Allertonia,* issued by the Pacific Tropical Botanical Garden, in Hawaii.

The length of this list came as a shock to a great many people, including its authors. This was the first time that the facts were ever put down on paper, or that anyone had real evidence that 70 percent of the remarkable Hawaiian flora were in danger of disappearance.

It is with dismay that we contemplate the fact that in all likelihood after a few years no one will ever again see a tree lobelia *(Cyanea),* a thistle tree *(Hesperomannia),* a tree geranium, a shrubby violet *(Viola trachellifolia),* a bush chickweed *(Alsinodendron),* a Brigham's gardenia, a kauila *(Colubrina, Alphitonia),* or any one of hundreds of other unique and wonderful Hawaiian plants, or any of the insects, land snails, or other animals that depend on them for food and habitat. This situation is a stark example of the many things that are happening today to make the world no longer a place to live a rich, varied, and satisfying life, but only a place that may support a bleak and impoverished existence—or, all too possibly, not even that.

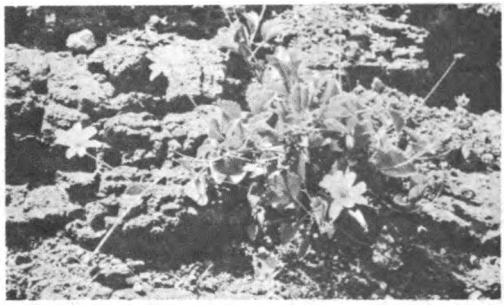


Viola helena *is a woody violet, not one of the tall shrub violets, but a rare species confined to bogs on Kauai.*

WHAT CAN WE DO? Is there any way to stop this appalling loss of plant and animal life, which makes Hawaii one of the most fascinating places on earth? Has the situation deteriorated past the point of no return? Some of us think not. Certainly we will lose some species; but if we want to save the great majority, the knowledge is available to do it.

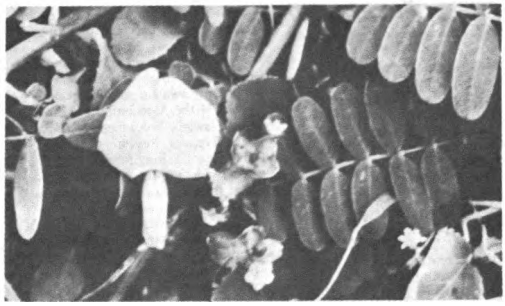
No plant can survive without a suitable habitat. Suitability differs from species to species. Some plants thrive on disturbance—they are called weeds. Some plants need sun; others can grow only in the shade of forests. Some need good drainage; others grow in swamps. Some need, or at least tolerate, salt. Most Hawaiian plants cannot withstand browsing and trampling; they need protection from herbivorous animals.

Some people think that rare species can be protected by moving them into botanic gardens. Certainly protection from cattle can usually be provided, and expert gardeners can, with enough money, reproduce or simulate many natural situations. In theory this should be the perfect solution, but in practice botanic gardens can be only an indispensible but temporary measure comparable to a hospital for gravely ill people. The hazards of relying solely on botanic gardens to preserve endangered species of plants are many. There is the laborer who mistakes the herbicide for the insecticide or the gardener who cannot resist selecting the best, the color variant, or the bizarre mutant, so the species does not stay the same but becomes a cultivar. There is a tendency in botanic gardens to maintain pioneer ecological conditions—that is, conditions suitable for the first colonists on new or bare mineral soil in full sun—even for climax species, which inhabit stable, shady, rich forest situations. Worst of all, impermanence, change in policy, loss of interest, inflation, and financial difficulty—all these affect such "luxuries" as



Bidens cuneata *(above) is found growing on tuff, or consolidated volcanic ash, on Diamond Head, the conspicuous volcanic cone that is a Honolulu landmark. A few plants still persist on the hot dry rim and upper slopes of this crater.*

Sesbania tomentosa *(below), a native shrub of the bean family with beautiful salmon or red flowers, inhabits principally coastal sand dunes but has almost vanished under pressure of human activities.*



botanic gardens, which are the first places to feel budget cuts or to lose support altogether.

THE ONLY reasonably sure and reliable way to save most rare plants from extinction is to set aside sufficiently large and numerous samples of all natural habitats so that these species can continue to live their normal lives under the conditions that favor them.

In Hawaii the range of natural habitats is becoming known, and good samples of these habitats can be preserved in several ways. The two national parks—Hawaii Volcanoes and Haleakala—form a fine start. The present administration of Hawaii Volcanoes National Park on the Big Island is very much aware of its responsibility to protect the endangered species growing within its boundaries and to prevent others from becoming endangered. But it faces formidable problems in carrying out these responsibilities. Ridding the park of feral goats and pigs is a Herculean task that until very recently has been shirked. However, progress is being made.

The problem of aggressive exotic plants in habitats that are naturally early in vegetational succession is an almost impossible one. Much careful work is required even to have a hope of eliminating such plants as broomsedge *(Andropogon)*, blackberry *(Rubus)*, strawberry guava *(Psidium cattleianum)*, pamakani *(Eupatorium riparium)*, banana poka *(Passiflora)*, and many others. Some of the more closed vegetation types not too close to roads pose less serious problems with weeds, if protected from feral animals.

The goat problem in Haleakala National Park on Maui, at last report, was not even being seriously approached. It is probably too much to expect, in times of budgetary problems, that the necessary funds and manpower will be utilized for this purpose.

The state of Hawaii has the legal apparatus for an effective system of natural areas, thanks to the efforts of conservationists allied with some far-sighted legislators. However, the responsible agencies in the state government have implemented this act at a pace that would let most species become extinct before reserves were created to protect more than a small fraction of them.

Unfortunately, the attitude seems to be that only land that is of no conceivable use for anything else is available for natural reserves. This will protect a few species, mostly those that need it least for the very reason that no one wants to farm or build on the bare lava-flows where they live. More species of plants grow on good land than on poor land, however. The species most threatened are those in the lowlands where people want to build houses, roads, hotels, and golf courses.

If we are to save any significant number of the endangered species of Hawaiian plants, a certain amount of the valuable land, enough to provide at least several sizable samples of each sort of habitat, must be set aside and legally protected.

Several conservation organizations are interested in doing a share of this, but mostly they are made up of not very wealthy people. One or two of them have seemed stable enough that certain

Brighamia insignis *is a remarkable rosette shrub of the Lobelia family neither closely related to nor much like anything else on earth. It is found on a few bare lava sea cliffs on the older Hawaiian Islands but has almost disappeared.*

landowners have donated significant pieces of property and may donate more. If these pieces of land can be protected from the "barbarians that build bridges" and roads, a good start will be made.

Ultimately, however, the public interest in saving the 1,500 or more species that seem on the way out will necessarily be expressed through their governments at all levels. Only governments can afford to build highways. If they can build highways because the public wants them to, the public can also direct them to establish adequate nature preserves.

Environmental consciousness is, belatedly, becoming a political force. People are beginning to question the old robber-baron system of values. This new awareness has begun to work some near-miracles and can be made to do more. If the people in Hawaii want their children and grandchildren to be able to see a tree lobelia, an *ape-ape*, or a wild hibiscus, it is still within their power to make it possible. But time is fast running out for many of these beautiful and curious plants. Perhaps what we do in matters like this is the real measure of our civilization, or at least of our culture. ■

ADDITIONAL READING

Fascinating detailed accounts of the phenomena of evolution of island life, especially that in Hawaii, can be found in three brilliant books by Professor Sherwin Carlquist—*Island Life* (1965), *Hawaii, A Natural History* (1971), and *Island Biology* (1974). A modern history of the Hawaiian Islands can be found in *Shoal of Time*, by Professor Gavan Daws (1968). These books are rewarding reading and will give a background to what the world is losing with the disappearance of the native flora and fauna of the Hawaiian Archipelago.

A distinguished and widely published botanist and ecologist, Dr. F. Raymond Fosberg is curator of botany at the Smithsonian Institution's National Museum of Natural History. He has been chairman of the Pacific Science Association's Standing Committee on Botany and has served several terms as vice president of the Nature Conservancy. His work for two decades compiling data on endangered species of plants of the Pacific Basin formed the basis of the list of endangered Hawaiian plants in the Smithsonian's *Report on Endangered and Threatened Plant Species of the United States*, presented to Congress in January 1975.

Editor's Note

GET THE GOATS!

The National Park Service's Natural Resources Management Plan for Hawaii Volcanoes National Park, released early in 1974, properly focused on protecting and restoring depleted endemic plant populations in the park. Unfortunately, the plan called for "reduction and control" of feral animals rather than their complete eradication from the parks. Fences and "deputy rangers" would be used to help reduce and control the animals. However, protecting and restoring endangered species of native Hawaiian plants is clearly impossible without completely eradicating feral goats and pigs from park ecosystems.

NPCA has been involved for many years with the problem of goats in Hawaiian parks. In February 1974 the Association protested the Hawaii Volcanoes National Park Natural Resources Management Plan, calling for stronger action with respect to eliminating feral animals within the enclosures once the fences were built.

The administration of Hawaii Volcanoes National Park should be commended for its progress on the feral animal problem. Fences are 65 percent complete, and goat reduction programs are actively underway. However, no progress on a goat removal program is evident at Haleakala National Park—nor has a similar natural resources management plan been prepared.

NPCA members can help this serious situation by writing the National Park Service to urge completion of fencing in and around Haleakala and readoption of the goal of *complete eradication* of goats and pigs from these parks in a carefully supervised, humane manner. Write to:

Hon. Gary E. Everhardt
Director, National Park Service
Washington, D.C. 20240

See also Endangered plants, page 20.